ADDENDUM NO. 1

Date: **December 2, 2022**

Project Name: **San Gabriel East EST**

This Addendum forms a part of Contract and clarifies, corrects or modifies original Bid Documents, dated November 2022. Acknowledge receipt of this addendum in space provided on bid form. Failure to do so may subject bidder to disqualification.

Revisions/Clarifications:

N/A

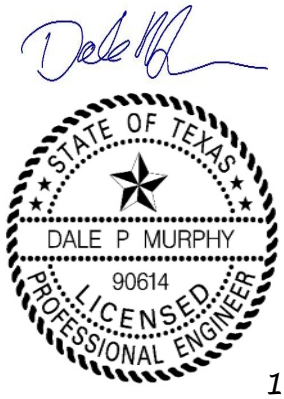
A. Contract Documents and Technical Specifications

N/A

B. Drawing Revisions

Complete project plan set is attached.

This addendum consists of **35** page(s).



12/2/22

_____
Approved by ENGINEER/ARCHITECT

END OF ADDENDUM NO. 1

CITY OF LEANDER

SAN GABRIEL EAST ELEVATED STORAGE TANK

CAPITAL IMPROVEMENTS PROJECT CONSTRUCTION PLANS

PROJECT NO. 21-CIP-005

SEPTEMBER 14, 2021

SUBMITTED FOR APPROVAL
BY:

DALE P. MURPHY, P.E.
K FRIESE & ASSOCIATES, INC.

11/04/2022
DATE

STATE OF TEXAS
DALE P. MURPHY
90614
LICENSED
PROFESSIONAL ENGINEER

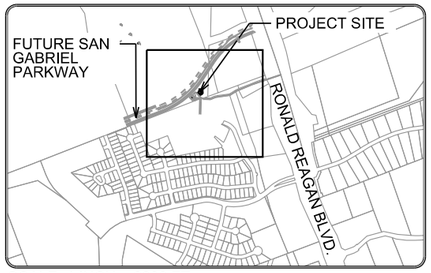
PREPARED FOR:

CITY OF LEANDER, TEXAS
201 N. BRUSHY STREET
LEANDER, TEXAS 78641

INDEX OF SHEETS

NOTE:
THE ENGINEER ON RECORD IS SOLELY RESPONSIBLE FOR THE COMPLETENESS, ACCURACY, REGULATORY COMPLIANCE, AND ADEQUACY OF THESE PLANS AND/OR SPECIFICATIONS WHETHER OR NOT THE PLANS AND/OR SPECIFICATIONS WERE REVIEWED BY CITY ENGINEER(S).

REVISION #	DESCRIPTION	APPROVAL



SCALE: 1 INCH = 2000 FT

APPROVED BY:

ROBIN M. GRIFFIN, AICP, EXECUTIVE DIRECTOR OF DEVELOPMENT SERVICES — DATE

EMILY TRUMAN, P.E., C.F.M., CITY ENGINEER — DATE

GINA ELLISON, P.E., PUBLIC WORKS DIRECTOR — DATE

MARK TUMMONS, CPRP, DIRECTOR OF PARKS AND RECREATION — DATE

CHIEF JOSHUA DAVIS, FIRE MARSHAL — DATE

PROJECT INFORMATION

OWNER:
CITY OF LEANDER
201 N. BRUSHY STREET
LEANDER, TEXAS 78641
(512) 528-2721

ENGINEER:
K FRIESE + ASSOCIATES
1120 S. CAPITAL OF TEXAS HIGHWAY
CITYVIEW 2, SUITE 100
AUSTIN, TEXAS 78746
(512) 338-1704

SURVEYOR:
INLAND GEODETICS
1504 CHISHOLM TRAIL ROAD
SUITE 103
ROUND ROCK, TEXAS 78681
(512) 238-1200

DEVELOPER:
CITY OF LEANDER
201 N. BRUSHY STREET
LEANDER, TEXAS 78641
(512) 528-2721

PROPERTY INFORMATION:
LOCATION: LEANDER, WILLIAMSON COUNTY, TEXAS
LATITUDE: 30° 36' 14" N
LONGITUDE: 97° 49' 11" W
TOTAL DISTURBED AREA = 2.02 ACRES

NOTE:
ALL PROPOSED IMPROVEMENTS TO BE OWNED AND OPERATED BY THE CITY OF LEANDER.

PREPARED BY:

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
1120 S. CAPITAL OF TEXAS HIGHWAY
CITYVIEW 2, SUITE 100
AUSTIN, TEXAS 78746
P – 512.338.1704 F – 512.338.1784
TBPE FIRM #6535
WWW.KFRIESE.COM

THIS PLAN SET IS FULL SIZE AT 11" X 17".

CITY OF LEANDER - SAN GABRIEL ELEVATED STORAGE TANK

GENERAL CONSTRUCTION NOTES

CITY CONTACTS:

ENGINEERING MAIN LINE:	512-528-2766
PLANNING DEPARTMENT:	512-528-2750
PUBLIC WORKS MAIN LINE:	512-259-2640
STORMWATER INSPECTIONS:	512-285-0055
UTILITIES MAIN LINE:	512-259-1142
UTILITIES ON-CALL:	512-690-4760

1. THE CONTRACTOR SHALL VERIFY ALL DEPTHS AND LOCATIONS OF EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION. ANY DISCREPANCIES WITH CONSTRUCTION PLANS FOUND IN THE FIELD SHALL BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE ENGINEER.
2. THE CONTRACTOR SHALL CONTACT THE TEXAS EXCAVATION SYSTEM AT 1-800-344-8377 FOR EXISTING UTILITY LOCATIONS 48 HOURS PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES THAT ARE TO BE EXTENDED, TIED TO, CROSSED, OR ALTERED; OR SUBJECT TO DAMAGE/INCONVENIENCE BY THE CONSTRUCTION OPERATIONS.
3. CONTACT THE CITY OF LEANDER PUBLIC WORKS DEPARTMENT FOR EXISTING WATER, WASTEWATER, STREET LIGHT ELECTRICAL WIRING, AND TRAFFIC SIGNAL WIRING LOCATIONS A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION.
   a. LOCATE REQUESTS MUST INCLUDE A COPY OF YOUR 811 TICKET.
   b. REFRESH ALL LOCATES BEFORE 14 DAYS LOCATE REFRESH REQUESTS MUST INCLUDE A COPY OF YOUR 811 TICKET. TEXAS PIPELINE DAMAGE PREVENTION LAWS REQUIRE THAT A LOCATE REFRESH REQUEST BE SUBMITTED BEFORE 14 DAYS, OR IF LOCATION MARKERS ARE NO LONGER VISIBLE.
   c. REPORT ALL DAMAGE TO CITY INFRASTRUCTURE IMMEDIATELY IF YOU WITNESS OR EXPERIENCE EXCAVATION DAMAGE, PLEASE CONTACT THE CITY OF LEANDER PUBLIC WORKS DEPARTMENT BY PHONE. IF DAMAGE IS WITNESSED OR EXPERIENCED AFTER HOURS, CALL THE CITY OF LEANDER UTILITIES ON-CALL LINE AT THE NUMBER LISTED ABOVE.
4. ANY CHANGES OR REVISIONS TO THESE PLANS MUST FIRST BE SUBMITTED TO THE CITY BY THE DESIGN ENGINEER FOR REVIEW AND WRITTEN APPROVAL PRIOR TO CONSTRUCTION OF THE REVISION.
5. A TRAFFIC CONTROL PLAN, IN ACCORDANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, SHALL BE SUBMITTED TO THE CITY FOR REVIEW AND APPROVAL PRIOR TO ANY PARTIAL OR COMPLETE ROADWAY CLOSURES. TRAFFIC CONTROL PLANS SHALL BE SITE SPECIFIC AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER. LANE CLOSURES ON ARTERIALS AND ANY FULL ROAD CLOSURES REQUIRE MESSAGE BOARDS NOTIFYING THE PUBLIC ONE WEEK PRIOR TO THE CLOSURE.
6. NO WORK IS TO BE PERFORMED BETWEEN THE HOURS OF 6:00 P.M. AND 7:00 A.M. THE CITY INSPECTOR RESERVES THE RIGHT TO REQUIRE THE CONTRACTOR TO UNCOVER ALL WORK PERFORMED WITHOUT INSPECTION. FURTHER, THERE IS A NOISE ORDINANCE IN EFFECT FOR CONSTRUCTION ACTIVITY BETWEEN THE HOURS OF 9 PM AND 7 AM. REQUESTS FOR EXCEPTIONS TO THE ORDINANCE MUST BE MADE TO LEANDER CITY COUNCIL.
7. CONTACT THE CITY INSPECTOR 4 DAYS PRIOR TO WORK TO SCHEDULE ANY INSPECTIONS ON WEEKENDS OR CITY HOLIDAYS.
8. NO STREET LIGHTS OR SIGNS OF ANY KIND ARE TO BE PLACED WITHIN ANY SIDEWALKS.
9. NO BLASTING IS ALLOWED.
10. ANY EXISTING UTILITIES, PAVEMENT, CURBS, SIDEWALKS, STRUCTURES, TREES, ETC., THAT ARE DAMAGED OR REMOVED SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO COST TO THE OWNER.
11. THE CONTRACTOR SHALL GIVE THE CITY OF LEANDER 48 HOURS NOTICE BEFORE BEGINNING EACH PHASE OF CONSTRUCTION. CONTACT ASSIGNED CITY INSPECTOR.
12. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD WITH THE CONTRACTOR, DESIGN ENGINEER/PERMIT APPLICANT AND THE CITY OF LEANDER REPRESENTATIVES PRIOR TO INSTALLATION OF EROSION/SEDIMENTATION CONTROLS AND TREE PROTECTION MEASURES AND PRIOR TO BEGINNING ANY WORK. THE CONTRACTOR SHALL NOTIFY THE CITY OF LEANDER PLANNING DEPARTMENT PLANNING COORDINATOR AT LEAST THREE (3) DAYS PRIOR TO THE MEETING DATE.
13. THE CONTRACTOR AND ENGINEER SHALL KEEP ACCURATE RECORDS OF ALL CONSTRUCTION THAT DEVIATES FROM THE PLANS. THE ENGINEER SHALL FURNISH THE CITY OF LEANDER ACCURATE "RECORD DRAWINGS" FOLLOWING THE COMPLETION OF ALL CONSTRUCTION. THESE "RECORD DRAWINGS" SHALL MEET THE SATISFACTION OF THE ENGINEERING DEPARTMENTS PRIOR TO FINAL ACCEPTANCE
14. WHEN CONSTRUCTION IS BEING CARRIED OUT WITHIN EASEMENTS, THE CONTRACTOR SHALL CONFINE HIS WORK TO WITHIN THE PERMANENT AND TEMPORARY EASEMENTS. PRIOR TO ACCEPTANCE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL TRASH AND DEBRIS WITHIN THE PERMANENT EASEMENTS. CLEANUP SHALL BE TO THE SATISFACTION OF THE ENGINEER.
15. CONTRACTOR TO LOCATE, PROTECT, AND MAINTAIN BENCHMARKS, MONUMENTS, CONTROL POINTS AND PROJECT ENGINEERING REFERENCE POINTS. RE-ESTABLISH DISTURBED OR DESTROYED ITEMS BY REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF TEXAS, AT NO ADDITIONAL COST TO OWNER.
16. THE CONTRACTOR SHALL PROTECT ALL EXISTING FENCES. IN THE EVENT THAT A FENCE MUST BE REMOVED, THE CONTRACTOR SHALL REPLACE SAID FENCE OR PORTION THEREOF WITH THE SAME TYPE OF FENCING TO A QUALITY OF EQUAL OR BETTER THAN THE ORIGINAL FENCE.
17. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST CITY OF AUSTIN STANDARD SPECIFICATIONS. CITY OF AUSTIN STANDARDS SHALL BE USED UNLESS OTHERWISE NOTED IN DETAILS.
18. ALL CONSTRUCTION OPERATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH APPLICABLE REGULATIONS OF THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA). OSHA STANDARDS MAY BE PURCHASED FROM THE GOVERNMENT PRINTING OFFICE; INFORMATION AND RELATED REFERENCE MATERIALS MAY BE PURCHASED FROM OSHA, 1033 LA POSADA DR. SUITE 375, AUSTIN, TEXAS 78752-3832.
19. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT WHERE NOT SPECIFICALLY COVERED IN THE PROJECT SPECIFICATIONS SHALL CONFORM TO ALL CITY OF LEANDER DETAILS AND CITY OF AUSTIN STANDARD SPECIFICATIONS.
20. PROJECT SPECIFICATIONS TAKE PRECEDENCE OVER PLANS AND SPECIAL CONDITIONS GOVERN OVER TECHNICAL SPECIFICATIONS.
21. HOT MIX ASPHALTIC CONCRETE PAVEMENT SHALL BE MINIMUM THICKNESS OF 2 INCHES WITH NO RECYCLED ASPHALT SHINGLES CONTENT.
22. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY QUESTIONS THAT MAY RISE CONCERNING THE INTENT, PLACEMENT, OR LIMITS OF DIMENSIONS OR GRADES NECESSARY FOR THE CONSTRUCTION OF THIS PROJECT.
23. CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL PERMITS, TESTS, APPROVALS AND ACCEPTANCES REQUIRED TO COMPLETE CONSTRUCTION OF THIS PROJECT.
24. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION BETWEEN HIMSELF AND OTHER CONTRACTORS AND UTILITIES IN THE VICINITY OF THE PROJECT. THIS INCLUDES GAS, WATER, WASTEWATER, ELECTRICAL, TELEPHONE, CABLE TV AND STREET DRAINAGE WORK. ONCE THE CONTRACTOR BECOMES AWARE OF A POSSIBLE CONFLICT, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEER WITHIN TWENTY-FOUR (24) HOURS.
25. THE CONTRACTOR MUST OBTAIN A CONSTRUCTION WATER METER FOR ALL WATER USED DURING CONSTRUCTION. A COPY OF THIS PERMIT MUST BE CARRIED AT ALL TIMES BY ALL WHO USE WATER.
26. CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING ROADS AND DRIVES ADJACENT TO AND NEAR THE SITE FREE FROM SOIL, SEDIMENT AND DEBRIS. CONTRACTOR WILL NOT REMOVE SOIL, SEDIMENT OR DEBRIS FROM ANY AREA OR VEHICLE BY MEANS OF WATER. ONLY SHOVELING AND SWEEPING WILL BE ALLOWED. CONTRACTOR WILL BE RESPONSIBLE FOR DUST CONTROL FROM THE SITE.
27. THE CITY OF LEANDER SHALL NOT BE PETITIONED FOR ACCEPTANCE UNTIL ALL NECESSARY EASEMENT DOCUMENTS HAVE BEEN SIGNED AND RECORDED.
28. AN ENGINEER'S CONCURRENCE LETTER AND RECORD DRAWINGS SHALL BE SUBMITTED TO THE ENGINEERING DEPARTMENT PRIOR TO THE ISSUANCE OF CERTIFICATE OF COMPLETION OR SUBDIVISION ACCEPTANCE. THE ENGINEER AND CONTRACTOR SHALL VERIFY THAT ALL FINAL REVISIONS AND CHANGES HAVE BEEN MADE TO THE DIGITAL COPY PRIOR TO CITY SUBMITTAL. RECORD CONSTRUCTION DRAWINGS, INCLUDING ROADWAY AND ALL UTILITIES SHALL BE PROVIDED TO THE CITY IN DIGITAL FORMAT AS AUTOCAD ".DWG" FILES, MICROSTATION ".DGN" FILES OR ESRI ".SHP" FILES ON CD ROM. LINE WEIGHTS, LINE TYPES AND TEXT SIZE SHALL BE SUCH THAT IF HALF-SIZE PRINTS (11"X17") WERE PRODUCED, THE PLANS WOULD STILL BE LEGIBLE. ALL REQUIRED DIGITAL FILES SHALL CONTAIN A MINIMUM OF TWO CONTROL POINTS REFERENCED TO THE STATE PLANE GRID COORDINATE SYSTEM -TEXAS CENTRAL ZONE (4203), IN US SURVEY FEET AND SHALL INCLUDE ROTATION INFORMATION AND SCALE FACTOR REQUIRED TO REDUCE SURFACE COORDINATES TO GRID COORDINATES IN US SURVEY FEET.
29. TREES IN EXISTING ROW SHOULD BE PROTECTED OR NOTED IN THE PLANS TO BE REMOVED.

EROSION CONTROL NOTES

1. THE CONTRACTOR SHALL INSTALL EROSION/SEDIMENTATION CONTROLS AND TREE PROTECTIVE FENCING PRIOR TO ANY WORK (CLEARING, GRUBBING OR EXCAVATION). CONTACT STORMWATER INSPECTOR FOR ON SITE INSPECTION PRIOR TO BEGINNING CONSTRUCTION.
2. THE CONTRACTOR IS REQUIRED TO INSPECT THE CONTROLS AND FENCES AT WEEKLY INTERVALS AND AFTER SIGNIFICANT RAINFALL EVENTS TO ENSURE THAT THEY ARE FUNCTIONING PROPERLY. THE PERSON(S) RESPONSIBLE FOR MAINTENANCE OF CONTROLS AND FENCES SHALL IMMEDIATELY MAKE ANY NECESSARY REPAIRS TO DAMAGED AREAS. SILT ACCUMULATION AT CONTROLS MUST BE REMOVED WHEN THE DEPTH REACHES SIX (6) INCHES.
3. THE TEMPORARY SPOILS DISPOSAL SITE IS TO BE SHOWN IN THE EROSION CONTROL MAP.
4. ANY ON-SITE SPOILS DISPOSAL SHALL BE REMOVED PRIOR TO ACCEPTANCE UNLESS SPECIFICALLY SHOWN ON THE PLANS. THE DEPTH OF SPOIL SHALL NOT EXCEED 10 FEET IN ANY AREA.
5. ALL AREAS DISTURBED OR EXPOSED DURING CONSTRUCTION SHALL BE RESTORED WITH A MINIMUM OF 6 INCHES OF TOPSOIL AND COMPOST BLEND. TOPSOIL ON SINGLE FAMILY LOTS MAY BE INSTALLED WITH HOME CONSTRUCTION. THE TOPSOIL AND COMPOST BLEND SHALL CONSIST OF 75% TOPSOIL AND 25% COMPOST.
6. SEEDING FOR REESTABLISHING VEGETATION SHALL COMPLY WITH THE AUSTIN GROW GREEN GUIDE OR WILLIAMSON COUNTY'S PROTOCOL FOR SUSTAINABLE ROADSIDES (SPEC 164--WC001 SEEDING FOR EROSION CONTROL). RESEEDING VARIETIES OF BERMUDA SHALL NOT BE USED.
7. STABILIZED CONSTRUCTION ENTRANCE IS REQUIRED AT ALL POINTS WHERE CONSTRUCTION TRAFFIC IS EXITING THE PROJECT ONTO EXISTING PAVEMENT. LINEAR CONSTRUCTION PROJECTS MAY REQUIRE SPECIAL CONSIDERATION. ROADWAYS SHALL REMAIN CLEAR OF SILT AND MUD.
8. TEMPORARY STOP SIGNS SHOULD BE INSTALLED AT ALL CONSTRUCTION ENTRANCES WHERE A STOP CONDITION DOES NOT ALREADY EXIST.
9. IN THE EVENT OF INCLEMENT WEATHER THAT MAY RESULT IN A FLOODING SITUATION, THE CONTRACTOR SHALL REMOVE INLET PROTETION MEASURES UNTIL SUCH TIME AS THE WEATHER EVENT HAS PASSED.

WATER AND WASTEWATER NOTES

1. PRESSURE TAPS SHALL BE IN ACCORDANCE WITH CITY OF LEANDER STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL PERFORM ALL EXCAVATION, ETC. AND SHALL FURNISH, INSTALL AND AIR TEST THE SLEEVE AND VALVE. A CITY OF LEANDER INSPECTOR MUST BE PRESENT WHEN THE CONTRACTOR MAKES A TAP, AND/OR ASSOCIATED TESTS. A MINIMUM OF TWO (2) WORKING DAYS NOTICE IS REQUIRED. "SIZE ON SIZE" TAPS WILL NOT BE PERMITTED UNLESS MADE BY THE USE OF AN APPROVED FULL-CIRCLE GASKETED TAPPING SLEEVE. CONCRETE BLOCKING SHALL BE PLACED BEHIND AND UNDER ALL TAP SLEEVES A MINIMUM OF 24 HOURS PRIOR TO THE BRANCH BEING PLACED INTO SERVICE. BLOCKING SHALL BE INSPECTED PRIOR TO BACKFILL.
2. FIRE HYDRANTS ON MAINS UNDER CONSTRUCTION SHALL BE SECURELY WRAPPED WITH A BLACK POLY WRAP BAG AND TAPED INTO PLACE. THE POLY WRAP SHALL BE REMOVED WHEN THE MAINS ARE ACCEPTED AND PLACED INTO SERVICE.
3. CURVILINEAR WASTEWATER DESIGN LAYOUT IS NOT PERMITTED.
4. THRUST BLOCKING OR RESTRAINTS SHALL BE IN ACCORDANCE WITH THE CITY OF LEANDER STANDARD SPECIFICATIONS AND REQUIRED AT ALL FITTINGS PER DETAIL OR MANUFACTURES RECOMMENDATION.ALL FITTINGS SHALL HAVE BOTH THRUST BLOCKING AND RESTRAINTS.
5. MANDREL TESTING WILL BE REQUIRED ON ALL WASTEWATER PIPE. PER TCEQ, THIS TEST MUST BE CONDUCTED AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS.
6. ALL NEWLY INSTALLED PIPES AND RELATED PRODUCTS MUST CONFORM TO AMERICAN NATIONAL STANDARDS INSTITUTE/NATIONAL SANITATION FOUNDATION (ANSI/NSF) STANDARD 61 AND MUST BE CERTIFIED BY AND ORGANIZATION ACCREDITED BY ANSI.
7. IN ADDITION TO NORMAL COMPACTION METHODS DURING DRY WEATHER CONDITIONS, TRENCH AND MANHOLE BACKFILL IN AND/OR ADJACENT TO STREETS, STRUCTURES, DRIVEWAYS, ETC., SHOULD BE FLOODED TO PROVIDE ADDITIONAL CONSOLIDATION OF BACKFILL DURING CONSTRUCTION PERIODS THAT DO NOT EXPERIENCE SIGNIFICANT RAINFALL EVENTS PRIOR TO SUBGRADE PREPARATION, FLEXIBLE BASE PLACEMENT, PACING OPERATIONS.
8. ALL WATER SERVICE, WASTEWATER SERVICE AND VALVE LOCATIONS SHALL BE APPROPRIATELY STAMPED AS FOLLOWS:

WATER SERVICE	"W" ON TOP OF CURB
WASTEWATER SERVICE	"S" ON TOP OF CURB
VALVE	"V" ON TOP OF CURB

9. TOOLS FOR STAMPING THE CURBS SHALL BE PROVIDED BY THE CONTRACTOR. OTHER APPROPRIATE MEANS OF STAMPING SERVICE AND VALVE LOCATIONS SHALL BE PROVIDED IN AREAS WITHOUT CURBS. SUCH MEANS OF STAMPING SHALL BE SPECIFIED BY THE ENGINEER AND ACCEPTED BY THE CITY OF LEANDER.
10. ALL PLASTIC PIPES FOR USE IN PUBLIC WATER SYSTEMS MUST BEAR THE NATIONAL SANITATION FOUNDATION SEAL OF APPROVAL (NSF-PW) AND HAVE AN ASTM DESIGN PRESSURE RATING OF AT LEAST 200 PSI.
11. NO PIPE OR FITTING WHICH HAS BEEN USED FOR ANY PURPOSE OTHER THAN THE CONVEYANCE OF DRINKING WATER SHALL BE ACCEPTED OR RELOCATED FOR USE IN ANY PUBLIC DRINKING WATER SUPPLY.
12. TYPCIAL DEPTH OF COVER FOR ALL WASTEWATER LINES SHALL BE 48" MINIMUM, WATER LINES SHALL BE 36" MINIMUM UNDER BOTH PAVEMENT AND NATURAL GROUND. STORM SEWER SHALL BE 24" MINIMUM UNDER NATURAL GROUND.
13. THE HYDROSTATIC LEAKAGE RATE SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY AWWA FORMULAS.
14. ALL WATER MAINS, DISTRIBUTION LINES AND SERVICE LINES SHALL BE INSTALLED IN ENCASEMENT PIPE UNDERNEATH EXISTING STREETS AND OTHER PAVED SURFACES UNLESS APPROVED WITH PLANS.
15. ALL MECHANICAL RESTRAINTS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
16. ALL DEAD-END WATER MAINS SHALL HAVE THRUST RESTRAINTS INSTALLED ON THE LAST THREE PIPE-LENGTHS (STANDARD 20' LAYING LENGTH), AT MINIMUM, AND THRUST BLOCKS INSTALLED ON THE PLUG. ADDITIONAL THRUST RESTRAINTS MAY BE REQUIRED BASED UPON THE MANUFACTURER'S RECOMMENDATIONS AND/OR CALCULATIONS BY THE ENGINEER OF RECORD.
17. WHERE WATER LINES CROSS WASTEWATER LINES AND THERE IS LESS THAN 9 FEET CLEARANCE BETWEEN LINES, THE WASTEWATER LINE SHALL BE PLACED SO THAT THE WASTEWATER PIPE SECTION IS CENTERED ON THE WATER LINE AND CONSTRUCTED IN ACCORDANCE WITH TCEQ CHAPTERS 217.53(b) AND 290.44(e)
18. PIPE MATERIAL FOR WATER MAINS SHALL BE PVC (AWWA C900-16 MIN. 235 PSI PRESURRE RATING), WATER SERVICES (2" OR LESS) SHALL BE POLYETHYLENE TUBING (BLACK, 200PSI, SDR-(9)). DUCTILE IRON PIPE (AWWA C115/C151, MIN. PRESSURE CLASS 250) MAY BE USED FOR WATER MAINS WITH THE EXPRESS APPROVAL OF CITY OF LEANDER ENGINEERING.
19. PIPE FOR PRESSURE WASTEWATER MAINS SHALL BE PVC (AWWA C-900), GREEN AND MARKED FOR SEWER. PIPE MATERIAL FOR GRAVITY WASTEWATER MAINS SHALL BE PVC (ASTM D2241, D3034 MAX. SDR-26 OR PS115 F679) OR FIBERGLASS WITH PIPE STIFFNESS OF 72 PSI PER COA SPL WW-509.
20. ALL FIRE HYDRANT LEADS SHALL BE DUCTILE IRON PIPE (AWWA C100 PRESSURE CLASS 350)
21. INTERIOR SURFACES OF ALL DUCTILE IRON POTABLE OR RECLAIMED WATER PIPE SHALL BE CEMENT-MORTAR LINED AND SEAL COATED AS REQUIRED BY AWWA C104.
22. ALL IRON PIPE AND FITTINGS SHALL BE WRAPPED WITH MINIMUM 8-MIL POLYETHYLENE.
23. THE CONTRACTOR SHALL CONTACT THE ENGINEERING DEPARTMENT INSPECTOR AT 528-2700 AT LEAST 48 HOURS PRIOR TO CONNECTING TO THE EXISTING WATER LINES.
24. ALL MANHOLES SHALL BE CONCRETE WITH CAST IRON RING AND COVER. TAPPING OF FIBERGLASS MANHOLES SHALL NOT BE ALLOWED.
25. EXISTING MANHOLES MODIFIED BY CONSTRUCTION ACTIVITY SHALL BE TESTED FOR LEAKAGE BY VACUUM. ANY EXISTING MANHOLE WHICH FAILS TO PASS THE VACUUM TEST SHALL BE CLOSELY EXAMINED BY THE INSPECTOR AND THE CONTRACTOR TO DETERMINE IF THE MANHOLE CAN BE REPAIRED. THEREAFTER, THE CONTRACTOR SHALL EITHER REPAIR OR REMOVE AND REPLACE THE MANHOLE AS DIRECTED.
26. PIPE CONNECTIONS TO EXISTING MANHOLES AND JUNCTION BOXES SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF AUSTIN SPECIFICATION 506.5.F.
27. LINE FLUSHING OR ANY ACTIVITY USING A LARGE QUANTITY OF WATER MUST BE COOORINATED WITH THE PUBLIC WORKS DEPARTMENT.
28. THE CONTRACTOR, AT HIS EXPENSE, SHALL PERFORM STERILIZATION OF ALL CONSTRUCTED POTABLE WATER LINES AND SHALL PROVIDE ALL EQUIPMENT (INCLUDING TEST GAUGES), SUPPLIES (INCLUDING CONCENTRATED CHLORINE DISINFECTING MATERIAL), AND NECESSARY LABOR REQUIRED FOR THE STERILIZATION PROCEDURE. THE STERILIZATION PROCEDURE SHALL BE MONITORED BY CITY OF LEANDER PERSONNEL. WATER SAMPLES WILL BE COLLECTED BY THE CITY OF LEANDER TO VERIFY EACH TREATED LINE HAS ATTAINED AN INITIAL CHLORINE CONCENTRATION OF 50 PPM. WHERE MEANS OF FLUSHING IS NECESSARY, THE CONTRACTOR, AT HIS EXPENSE, SHALL PROVIDE FLUSHING DEVICES AND REMOVE SAID DEVICES PRIOR TO FINAL ACCEPTANCE BY THE CITY OF LEANDER.
29. SAMPLING TAPS SHALL BE BROUGHT UP TO 3 FEET ABOVE GRADE AND SHALL BE EASILY ACCESSIBLE FOR CITY PERSONNEL. AT THE CONTRACTORS' REQUEST, AND IN HIS PRESENCE, SAMPLES FOR BACTERIOLOGICAL TESTING WILL BE COLLECTED BY THE CITY OF LEANDER NOT LESS THAN 24 HOURS AFTER THE TREATED LINE HAS BEEN FLUSHED OF THE CONCENTRATED CHLORINE SOLUTION AND CHARGED WITH WATER APPROVED BY THE CITY.
30. TESTING SHALL BE PERFORMED FOR ALL WASTEWATER PIPE INSTALLED AND PRESSURE PIPE HYDROSTATIC TESTING OF ALL WATER LINES CONSTRUCTED. THE OWNER'S CONTRACTOR SHALL PROVIDE ALL EQUIPMENT (INCLUDING PUMPS AND GAUGES), SUPPLIES AND LABOR NECESSARY TO PERFORM THE TESTS. THE CONTRACTOR SHALL NOTIFY THE CITY OF LEANDER ENGINEERING DEPARTMENT NO LESS THAN 48 HOURS PRIOR TO PERFORMING STERILIZATION, QUALITY TESTS, OR PRESSURE TESTS. A CITY OF LEANDER INSPECTOR SHALL BE PRESENT FOR ALL TESTS AND SHALL BE PAID FOR BY THE OWNER/CONTRACTOR. THESE SERVICES ARE PAID FOR AT THE TIME OF CONSTRUCTION PLAN SUBMITTAL.
31. THE CONTRACTOR SHALL NOT OPEN OR CLOSE ANY VALVE UNLESS AUTHORIZED BY THE CITY OF LEANDER.
32. ALL VALVE BOXES AND COVERS SHALL BE CAST IRON.
33. ALL WATER VALVE COVERS ARE TO BE PAINTED BLUE.
34. ALL WATER METER BOXES SHALL BE:

a. SINGLE, 1" METER AND BELOW:	DFW37F-12-1CA, OR EQUAL
b. DUAL, 1" METER AND BELOW:	DFW39F-12-1CA, OR EQUAL
c. 1.5" SINGLE METER:	DFW65C-14-1CA, OR EQUAL
d. 2" SINGLE METER:	DFW1730F-12-1CA, OR EQUAL

35. SAND, AS DESCRIBED IN AUSTIN SPECIFICATION ITEM 510 PIPE, SHALL NOT BE USED AS BEDDING FOR WATER AND WASTEWATER LINES. ACCEPTABLE BEDDING MATERIALS ARE PIPE BEDDING STONE, PEA GRAVEL AND IN LIEU OF SAND, A NATURALLY OCCURRING OR MANUFACTURED STONE MATERIAL CONFORMING TO ASTM C33 FOR STONE QUALITY AND MEETING THE FOLLOWING GRADATION SPECIFICATION:

SIEVE SIZE	PERCENT RETAINED BY WEIGHT
1/2"	0
3/8"	0-2
#4	40-85
#10	95-100

36. THE CONTRACTOR IS HEREBY NOTIFIED THAT CONNECTING TO, SHUTTING DOWN, OR TERMINATING EXISTING UTILITY LINES MAY HAVE TO OCCUR AT OFF-PEAK HOURS. SUCH HOURS ARE USUALLY OUTSIDE NORMAL WORKING HOURS AND POSSIBLY BETWEEN 12AM AND 6 AM.
37. ALL WASTEWATER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) REGULATIONS, 30 TAC CHAPTER 213 AND 30 TAC CHAPTER 217, AS APPLICABLE. WHENEVER TCEQ AND CITY OF LEANDER SPECIFICATION CONFLICT, THE MORE STRINGENT SHALL APPLY.
38. MANHOLES SHALL BE COATED PER CITY OF AUSTIN SPL WW-511 (RAVEN 405 OR SPRAYWALL).
39. DENSITY TESTING FOR TRENCH BACKFILL LOCATED WITHIN THE LIMITS OF THE PAVED AREA IS TO BE DONE IN 12" LIFTS EVERY 500' AND AT LEAST ONCE PER LINE SEGMENT.
40. ALL GRAVITY WASTEWATER MAINS TO BE TESTED BY CAMERA AND PAID FOR BY THE CONTRACTOR. CAMERA TESTING FOR WASTEWATER LINES IN ROADWAY SHALL OCCUR BEFORE PAVING. CONTRACTOR SHALL PROVIDE THE CITY WITH A DVD COPY OF THE FULL CAMERA INSPECTION.
41. RECLAIMED AND RECYCLED WATER LINE SHALL BE CONSTRUCTED OF "PURPLE PIPE." ALL RECLAIMED AND RECYCLED WATER VALVE COVERS SHALL BE SQUARE AND PAINTED PURPLE.

STREET AND DRAINAGE NOTES

1. ALL SIDEWALKS SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT. THE CITY OF LEANDER HAS NOT REVIEWED THESE PLANS FOR COMPLIANCE WITH THE AMERICANS WITH DISABILITIES ACT, OR ANY OTHER ACCESSIBILITY LEGISLATION, AND DOES NOT WARRANTY OR APPROVE THESE PLANS FOR ANY ACCESSIBILITY STANDARDS.
2. PRIOR TO ACCEPTANCE THE ENGINEER SHALL SUBMIT DOCUMENTATION THAT THE IMPROVEMENTS WERE INSPECTED BY TDLR OR A REGISTERED ACCESSIBLITY SPECIALIST (RAS) AND ARE IN COMPLIANCE WITH THE REQUIREMENTS OF THE TABA.
3. CONTRACTOR SHALL PROVIDE QUALITY TESTING FOR ALL INFRASTRUCTURES TO BE ACCEPTED AND MAINTAINED BY THE CITY OF LEANDER AFTER COMPLETION. THE CONTRACTOR SHALL NOTIFY THE CITY OF LEANDER ENGINEERING DEPARTMENT AT 528-2700 NO LESS THAN 48 HOURS PRIOR TO ANY TESTING.
4. BACKFILL BEHIND THE CURB SHALL BE COMPACTED TO OBTAIN A MINIMUM OF 95% MAXIMUM DENSITY TO WITHIN 6" OF TOP OF CURB. MATERIAL USED SHALL BE PRIMARILY GRANULAR WITH NO ROCKS LARGER THAN 6" IN THE GREATEST DIMENSION. THE REMAINING 6" SHALL BE CLEAN TOPSOIL FREE FROM ALL CLODS AND SUITABLE FOR SUSTAINING PLANT LIFE
5. A MINIMUM OF 6" OF TOPSOIL SHALL BE PLACED BETWEEN THE CURB AND RIGHT-OF-WAY AND IN ALL DRAINAGE CHANNELS EXCEPT CHANNELS CUT IN STABLE ROCK.
6. DEPTH OF COVER FOR ALL CROSSINGS UNDER PAVEMENT, INCLUDING GAS, ELECTRIC TELEPHONE, CABLE TV, ETC., SHALL BE A MINIMUM OF 36" BELOW SUBGRADE.
7. STREET RIGHT-OF-WAY SHALL BE GRADED AT A SLOPE OF ¼" PER FOOT TOWARD THE CURB UNLESS OTHERWISE INDICATED. HOWEVER, IN NO CASE SHALL THE WIDTH OF RIGHT-OF-WAY AT ¼" PER FOOT SLOPE BE LESS THAN 10 FEET UNLESS A SPECIFIC REQUEST FOR AN ALTERNATE GRADING SCHEME IS MADE TO AND ACCEPTED BY THE CITY OF LEANDER PUBLIC WORKS DEPARTMENT.
8. BARRICADES BUILT TO THE CITY OF LEANDER STANDARDS SHALL BE ERECTED ON ALL DEAD-END STREETS AND AS NECESSARY DURING CONSTRUCTION TO MAINTAIN JOB AND PUBLIC SAFETY.
9. ALL REINFORCED CONCRETE PIPE SHALL BE MINIMUM CLASS III OF TONGUE AND GROOVE OR O-RING JOINT DESIGN.
10. THE CONTRACTOR IS TO NOTIFY THE ENGINEERING INSPECTOR 48 HOURS PRIOR TO THE FOLLOWING TESTING: PROOF ROLLING SUB-GRADE AND EVERY LIFT OF ROADWAY EMBANKMENT, IN-PLACE DENSITY TESTING OF EVERY BASE COURSE, AND ASPHALT CORES. ALL OF THIS TESTING MUST BE WITNESSED BY A CITY OF LEANDER REPRESENTATIVE.
11. THE CONTRACTOR MUST PROVIDE A PNEUMATIC TRUCK PER TXDOT SPEC FOR PROOF ROLLING.
12. AT INTERSECTIONS WHICH HAVE VALLEY DRAINAGE, THE CROWNS OF THE INTERSECTING STREETS WILL CULMINATE IN A DISTANCE OF 40 FEET FROM INTERSECTING CURB LINE UNLESS OTHERWISE NOTED.
13. AT THE INTERSECTION OF TWO 44' STREETS OR LARGER, THE CROWNS OF THE INTERSECTING STREETS WILL CULMINATE IN A DISTANCE OF 40 FEET FROM INTERSECTING CURB LINE UNLESS OTHERWISE NOTED.
14. A CURB LAYDOWN IS REQUIRED AT ALL POINTS WHERE THE PROPOSED SIDEWALK INTERSECTS THE CURB.
15. ALL STRIPING, WITH THE EXCEPTION OF STOP BARS, CROSS WALKS, WORDS AND ARROWS, IS TO BE TYPE II (WATER BASED). STOP BARS, CROSS WALKS, WORDS AND ARROWS REQUIRE TYPE I THERMOPLASTIC.
16. MANHOLE FRAMES, COVERS, VALVES, CLEAN-OUTS, ETC. SHALL BE RAISED TO GRADE PRIOR TO FINAL PAVEMENT CONSTRUCTION.
17. CONTRACTOR SHALL NOTIFY THE LEANDER ENGINEERING DEPARTMENT AT 528-2700 AT LEAST 48 HOURS PRIOR TO THE INSTALLATION OF ANY DRAINAGE FACILITY WITHIN A DRAINAGE EASEMENT OR STREET ROW. THE METHOD OF PLACEMENT AND COMPACTION OF BACKFILL IN THE CITY'S ROW MUST BE APPROVED PRIOR TO THE START OF BACKFILL OPERATIONS.
18. A STOP BAR SHALL BE PLACED AT ALL STOP SIGN LOCATIONS.
19. A MINIMUM OF SEVEN DAYS OF CURE TIME IS REQUIRED FOR HMAC PRIOR TO THE INTRODUCTION OF PUBLIC VEHICULAR TRAFFIC TO ANY STREETS.
20. THE GEOTECHNICAL ENGINEER SHALL INSPECT THE SUBGRADE FOR COMPLIANCE WITH THE DESIGN ASSUMPTIONS MADE DURING PREPARATION OF THE SOILS REPORT. ANY ADJUSTMENTS THAT ARE REQUIRED SHALL BE MADE THROUGH REVISIONS OF THE CONSTRUCTION PLANS.
21. GEOTECHNICAL INVESTIGATION INFORMATION WERE PROVIDED BY FUGRO, PAVEMENT RECOMMENDATIONS WERE NOT CONDUCTED.

TRENCH SAFETY NOTES

1. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT ARE DESCRIBED IN ITEM 509S "TRENCH SAFETY SYSTEMS" OF THE CITY OF AUSTIN STANDARD SPECIFICATIONS AND SHALL BE IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATION SAFETY AND HEALTH ADMINISTRATION REGULATIONS.

GRADING NOTES

1. POSITIVE DRAINAGE SHALL BE MAINTAINED ON ALL SURFACE AREAS WITHIN THE SCOPE OF THIS PROJECT. CONTRACTOR SHOULD TAKE PRECAUTIONS NOT TO ALLOW ANY PONDING OF WATER.
2. THE CONTRACTOR SHALL CONSTRUCT EARTHEN EMBANKMENTS WITH SLOPES NO STEEPER THAN 3:1 AND COMPACT SOIL TO 95% OF MAXIMUM DENSITY IN ACCORDANCE WITH THE CITY OF AUSTIN STANDARD SPECIFICATIONS.
3. AREAS OF SOIL DISTURBANCE ARE LIMITED TO GRADING AND IMPROVEMENTS SHOWN. ALL OTHER AREAS WILL NOT BE DISTURBED.

BENCHMARK NOTES

TBM "A" - EL = 998.75 - SQUARE CUT SET ON ROCK
TBM "B" - EL = 976.13 - INLAND CAP

REV. NO.	BY	DATE	REVISION DESCRIPTION

STATE OF TEXAS
DALE P. MURPHY
90614
LICENSED PROFESSIONAL ENGINEER
11/04/2022

K FRIESE & ASSOCIATES, INC.
1120 S. CAPITAL OF TEXAS HWY, II-100, AUSTIN, TX 78746

CITY OF LEANDER
SAN GABRIEL EAST ELEVATED STORAGE TANK

CITY OF LEANDER NOTES

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
FIRM #6535

CITY OF LEANDER

SCALE	
DATE	10/28/2022
SHEET NUMBER	C2 OF C21 2 OF 34

SPOILS SITE NOTES

1. THE TEMPORARY SPOILS STORAGE SITES ARE OUTLINED ON THE EROSION CONTROL MAP. THE DEPTH OF SPOIL WILL NOT EXCEED 10 FEET IN ANY AREA.
2. NO PERMANENT SPOILS DISPOSAL ON-SITE. CONTRACTOR SHALL MAKE ARRANGEMENTS FOR OFF-SITE DISPOSAL OF SPOILS.
3. OFF-SITE DISPOSAL: THE CONTRACTOR SHALL NOT DISPOSE OF SURPLUS EXCAVATED MATERIAL FROM THE SITE WITHOUT NOTIFYING THE INSPECTOR 48 HOURS PRIOR TO THE REMOVAL. THIS NOTIFICATION SHALL INCLUDE THE DISPOSAL LOCATION AND A COPY OF THE PERMIT ISSUED TO RECEIVE THE MATERIAL.

STANDARD TREE AND NATURAL AREA PROTECTION NOTES

1. ALL TREES AND NATURAL AREAS SHOWN ON PLANS TO BE PRESERVED SHALL BE PROTECTED DURING CONSTRUCTION WITH TEMPORARY FENCING.
2. PROTECTIVE FENCES SHALL BE ERECTED ACCORDING TO STANDARDS FOR TREE PROTECTION AS REQUIRED BY OWNER.
3. PROTECTIVE FENCES SHALL BE INSTALLED PRIOR TO THE START OF ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR GRADING), AND SHALL BE MAINTAINED THROUGHOUT ALL PHASES OF THE CONSTRUCTION PROJECT.
4. EROSION AND SEDIMENTATION CONTROL BARRIERS SHALL BE INSTALLED OR MAINTAINED IN A MANNER WHICH DOES NOT RESULT IN SOIL BUILD UP WITHIN TREE DRIP LINES.
5. PROTECTIVE FENCES SHALL SURROUND THE TREES OR GROUP OF TREES, AND WILL BE LOCATED AT THE OUTERMOST LIMIT OF BRANCHES (DRIPLINE), FOR NATURAL AREAS, PROTECTIVE FENCES SHALL FOLLOW THE LIMIT OF CONSTRUCTION LINE, IN ORDER TO PREVENT THE FOLLOWING:
   - A. SOIL COMPACTION IN THE ROOT ZONE AREA RESULTING FROM VEHICULAR TRAFFIC OR STORAGE OF EQUIPMENT OR MATERIALS;
   - B. ROOT ZONE DISTURBANCES DUE TO GRADE CHANGES (GREATER THAN 6 INCHES CUT OR FILL),
   - C. WOUNDS TO EXPOSED ROOTS, TRUNK OR LIMBS BY MECHANICAL EQUIPMENT;
   - D. OTHER ACTIVITIES DETRIMENTAL TO TREES SUCH AS CHEMICAL STORAGE, CEMENT TRUCK CLEANING, AND FIRES.
6. EXCEPTIONS TO INSTALLING FENCES AT TREE DRIP LINES MAY BE PERMITTED IN THE FOLLOWING CASES:
   - A. WHERE THERE IS TO BE AN APPROVED GRADE CHANGE, IMPERMEABLE PAVING SURFACE, TREE WELL, OR OTHER SUCH SITE DEVELOPMENT, ERECT THE FENCE APPROXIMATELY 2 TO 4 FEET BEYOND THE AREA DISTURBED;
   - B. WHERE THERE ARE SEVERE SPACE CONSTRAINTS DUE TO TRACT SIZE, OR OTHER SPECIAL REQUIREMENTS, CONTACT THE OWNER OR A/E TO DISCUSS ALTERNATIVES.

   SPECIAL NOTE: FOR THE PROTECTION OF NATURAL AREAS, NO EXCEPTIONS TO INSTALLING FENCES AT THE LIMIT OF CONSTRUCTION LINE WILL BE PERMITTED.

7. WHERE ANY OF THE ABOVE EXCEPTIONS RESULT IN A FENCE BEING CLOSER THAN 4 FEET TO A TREE TRUNK, PROTECT THE TRUNK WITH STRAPPED-ON PLANKING TO A HEIGHT OF 8 FT (OR TO THE LIMITS OF LOWER BRANCHING) IN ADDITION TO THE REDUCED FENCING PROVIDED.
8. TREES APPROVED FOR REMOVAL SHALL BE REMOVED IN A MANNER WHICH DOES NOT IMPACT TREES TO BE PRESERVED.
9. ANY ROOTS EXPOSED BY CONSTRUCTION ACTIVITY SHALL BE PRUNED FLUSH WITH THE SOIL. BACKFILL ROOT AREAS WITH GOOD QUALITY TOP SOIL AS SOON AS POSSIBLE. IF EXPOSED ROOT AREAS ARE NOT BACKFILLED WITHIN 2 DAYS, COVER THEM WITH ORGANIC MATERIAL IN A MANNER WHICH REDUCES SOIL TEMPERATURE AND MINIMIZES WATER LOSS DUE TO EVAPORATION.
10. NO LANDSCAPE TOPSOIL DRESSING GREATER THAN 4 INCHES SHALL BE PERMITTED WITHIN THE DRIP LINE OF TREES. NO SOIL IS PERMITTED ON THE ROOT FLARE OF ANY TREE.
11. PRUNING TO PROVIDE CLEARANCE FOR STRUCTURES, VEHICULAR TRAFFIC AND EQUIPMENT SHALL TAKE PLACE BEFORE DAMAGE OCCURS (RIPPING OF BRANCHES, ETC.).
12. ALL FINISHED PRUNING SHALL BE DONE ACCORDING TO RECOGNIZED, APPROVED STANDARDS OF THE INDUSTRY (REFERENCE THE NATIONAL ARBORIST ASSOCIATION PRUNING STANDARDS FOR SHADE TREES).

TCEQ EDWARDS AQUIFER GENERAL CONSTRUCTION NOTES

1. IF ANY SENSITIVE FEATURE IS DISCOVERED DURING CONSTRUCTION, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPROPRIATE TCEQ REGIONAL OFFICE MUST BE IMMEDIATELY NOTIFIED OF ANY SENSITIVE FEATURES ENCOUNTERED DURING CONSTRUCTION. THE REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MAY NOT PROCEED UNTIL THE TCEQ HAS REVIEWED AND APPROVED THE METHODS PROPOSED TO PROTECT THE SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM ANY POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY.
2. NO TEMPORARY ABOVEGROUND HYDROCARBON AND HAZARDOUS SUBSTANCE STORAGE TANK SYSTEM IS INSTALLED WITHIN 150 FEET OF A DOMESTIC, INDUSTRIAL, IRRIGATION, OR PUBLIC WATER SUPPLY WELL, OR OTHER SENSITIVE FEATURE.
3. PRIOR TO COMMENCEMENT OF CONSTRUCTION, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY SELECTED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS AND GOOD ENGINEERING PRACTICES. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, OR INCORRECTLY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS. THE CONTROLS MUST REMAIN IN PLACE UNTIL DISTURBED AREAS ARE REVEGETATED AND THE AREAS HAVE BECOME PERMANENTLY STABILIZED.
4. IF SEDIMENT ESCAPES THE CONSTRUCTION SITE, OFF-SITE ACCUMULATIONS OF SEDIMENT MUST BE REMOVED AT A FREQUENCY SUFFICIENT TO MINIMIZE OFFSITE IMPACTS TO WATER QUALITY (E.G., FUGITIVE SEDIMENT IN STREET BEING WASHED INTO SURFACE STREAMS OR SENSITIVE FEATURES BY THE NEXT RAIN).
5. SEDIMENT MUST BE REMOVED FROM SEDIMENT TRAPS OR SEDIMENTATION PONDS NOT LATER THAN WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50%. A PERMANENT STAKE MUST BE PROVIDED THAT CAN INDICATE WHEN THE SEDIMENT OCCUPIES 50% OF THE BASIN VOLUME.
6. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER SHALL BE PREVENTED FROM BECOMING A POLLUTANT SOURCE FOR STORMWATER DISCHARGES (E.G., SCREENING OUTFALLS, PICKED UP DAILY).
7. THE FOLLOWING RECORDS SHALL BE MAINTAINED AND MADE AVAILABLE TO THE TCEQ UPON REQUEST: THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR; THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE; AND THE DATES WHEN STABILIZATION MEASURES ARE INITIATED.

SANITARY SEWER / WATERLINE SEPARATION NOTES

1. WATERLINE/NEW SEWER LINE SEPARATION. WHEN NEW SANITARY SEWERS ARE INSTALLED, THEY SHALL BE INSTALLED NO CLOSER TO WATERLINES THAN NINE FEET IN ALL DIRECTIONS. SEWERS THAT PARALLEL WATERLINES MUST BE INSTALLED IN SEPARATE TRENCHES. WHERE THE NINE-FOOT SEPARATION DISTANCE CANNOT BE ACHIEVED, THE FOLLOWING GUIDELINES WILL APPLY:
   - A. WHERE A SANITARY SEWER PARALLELS A WATERLINE,THE SEWER SHALL BE CONSTRUCTED OF CAST IRON, DUCTILE IRON, OR PVC MEETING ASTM SPECIFICATIONS WITH A PRESSURE RATING FOR BOTH THE PIPE AND JOINTS OF 150 PSI. THE VERTICAL SEPARATION SHALL BE A MINIMUM OF TWO FEET BETWEEN OUTSIDE DIAMETERS AND THE HORIZONTAL SEPARATION SHALL BE A MINIMUM OF FOUR FEET BETWEEN OUTSIDE DIAMETERS. THE SEWER SHALL BE LOCATED BELOW THE WATERLINE.
   - B. WHERE A SANITARY SEWER CROSSES A WATERLINE AND THE SEWER IS CONSTRUCTED OF CAST IRON, DUCTILE IRON, OR PVC WITH A MINIMUM PRESSURE RATING OF 150 PSI, AN ABSOLUTE MINIMUM DISTANCE OF SIX INCHES BETWEEN OUTSIDE DIAMETERS SHALL BE MAINTAINED. IN ADDITION, THE SEWER SHALL BE LOCATED BELOW THE WATERLINE WHERE POSSIBLE AND ONE LENGTH OF THE SEWER PIPE MUST BE CENTERED ON THE WATERLINE.
   - C. WHERE A SEWER CROSSES UNDER A WATERLINE AND THE SEWER IS CONSTRUCTED OF ABS TRUSS PIPE, SIMILAR SEMI-RIGID PLASTIC COMPOSITE PIPE, CLAY PIPE, OR CONCRETE PIPE WITH GASKETED JOINTS, A MINIMUM TWO-FOOT SEPARATION DISTANCE SHALL BE MAINTAINED. THE INITIAL BACKFILL SHALL BE CEMENT STABILIZED SAND (TWO OR MORE BAGS OF CEMENT PER CUBIC YARD OF SAND) FOR ALL SECTIONS OF SEWER WITHIN NINE FEET OF THE WATERLINE. THIS INITIAL BACKFILL SHALL BE FROM ONE QUARTER DIAMETER BELOW THE CENTERLINE OF THE PIPE TO ONE PIPE DIAMETER (BUT NOT LESS THAN 12 INCHES) ABOVE THE TOP OF PIPE.
   - D. WHERE A SEWER CROSSES OVER A WATERLINE, ALL PORTIONS OF THE SEWER WITHIN NINE FEET OF THE WATERLINE SHALL BE CONSTRUCTED OF CAST IRON, DUCTILE IRON, OR PVC PIPE WITH A PRESSURE RATING OF AT LEAST 150 PSI USING APPROPRIATE ADAPTERS. IN LIEU OF THIS PROCEDURE THE NEW CONVEYANCE MAY BE ENCASED IN A JOINT OF 150 PSI PRESSURE CLASS PIPE AT LEAST 18 FEET LONG AND TWO NOMINAL SIZES LARGER THAN THE NEW CONVEYANCE. THE SPACE AROUND THE CARRIER PIPE SHALL BE SUPPORTED AT FIVE FEET INTERVALS WITH SPACERS OR BE FILLED TO THE SPRING LINE WITH WASHED SAND. THE ENCASEMENT PIPE SHOULD BE CENTERED ON THE CROSSING AND BOTH ENDS SEALED WITH CEMENT GROUT OR MANUFACTURED SEAL.
2. WATERLINE MANHOLE SEPARATION. UNLESS SANITARY SEWER MANHOLES AND THE CONNECTING SEWER CAN BE MADE WATERTIGHT AND TESTED FOR NO LEAKAGE, THEY MUST BE INSTALLED SO AS TO PROVIDE A MINIMUM OF NINE FEET OF HORIZONTAL CLEARANCE FROM AN EXISTING OR PROPOSED WATERLINE. WHERE THE NINE-FOOT SEPARATION DISTANCE CANNOT BE ACHIEVED, A CARRIER PIPE AS DESCRIBED IN PARAGRAPH (1)(D) OF THIS SECTION MAY BE USED WHERE APPROPRIATE.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY WATER DISTRIBUTION SYSTEM GENERAL CONSTRUCTION NOTES

1. THIS WATER DISTRIBUTION SYSTEM MUST BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS 30 TEXAS ADMINISTRATIVE CODE (TAC) CHAPTER 290 SUBCHAPTER D. WHEN CONFLICTS ARE NOTED WITH LOCAL STANDARDS, THE MORE STRINGENT REQUIREMENT SHALL BE APPLIED. CONSTRUCTION FOR PUBLIC WATER SYSTEMS MUST ALWAYS, AT A MINIMUM, MEET TCEQ'S "RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS.
2. AN APPOINTED ENGINEER SHALL NOTIFY IN WRITING THE LOCAL TCEQ'S REGIONAL OFFICE WHEN CONSTRUCTION WILL START. PLEASE KEEP IN MIND THAT UPON COMPLETION OF THE WATER WORKS PROJECT, THE ENGINEER OR OWNER SHALL NOTIFY THE COMMISSION'S WATER SUPPLY DIVISION, IN WRITING, AS TO ITS COMPLETION AND ATTEST TO THE FACT THAT THE WORK HAS BEEN COMPLETED ESSENTIALLY ACCORDING TO THE PLANS AND CHANGE ORDERS ON FILE WITH THE COMMISSION AS REQUIRED IN 30 TAC §290.39(H)(3).
3. ALL NEWLY INSTALLED PIPES AND RELATED PRODUCTS MUST CONFORM TO AMERICAN NATIONAL STANDARDS INSTITUTE/NATIONAL SANITATION FOUNDATION (ANSI/NSF) STANDARD 61-G AND MUST BE CERTIFIED BY AN ORGANIZATION ACCREDITED BY ANSI, AS REQUIRED BY 30 TAC §290.44(A)(1).
4. PLASTIC PIPE FOR USE IN PUBLIC WATER SYSTEMS MUST BEAR THE NATIONAL SANITATION FOUNDATION SEAL OF APPROVAL (NSF PW-G) AND HAVE AN ASTM DESIGN PRESSURE RATING OF AT LEAST 150 PSI OR A STANDARD DIMENSION RATIO OF 26 OR LESS, AS REQUIRED BY 30 TAC §290.44(A)(2).
5. NO PIPE WHICH HAS BEEN USED FOR ANY PURPOSE OTHER THAN THE CONVEYANCE OF DRINKING WATER SHALL BE ACCEPTED OR RELOCATED FOR USE IN ANY PUBLIC DRINKING WATER SUPPLY, AS REQUIRED BY 30 TAC §290.44(A)(3).
6. WATER TRANSMISSION AND DISTRIBUTION LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. HOWEVER, THE TOP OF THE WATER LINE MUST BE LOCATED BELOW THE FROST LINE AND IN NO CASE SHALL THE TOP OF THE WATER LINE BE LESS THAN 24 INCHES BELOW GROUND SURFACE, AS REQUIRED BY 30 TAC §290.44(A)(4).
7. PURSUANT TO 30 TAC §290.44(A)(5), THE HYDROSTATIC LEAKAGE RATE SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY THE MOST CURRENT AWWA FORMULAS FOR PVC PIPE, CAST IRON AND DUCTILE IRON PIPE. INCLUDE THE FORMULAS IN THE NOTES ON THE PLANS.

   THE HYDROSTATIC LEAKAGE RATE FOR POLYVINYL CHLORIDE (PVC) PIPE AND APPURTENANCES SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY FORMULAS IN AMERICA WATER WORKS ASSOCIATION (AWWA) C-605 AS REQUIRED IN 30 TAC §290.44(A)(5). PLEASE ENSURE THAT THE FORMULA FOR THIS CALCULATION IS CORRECT AND MOST CURRENT FORMULA IS IN USE;

   $$Q = \frac{LDvP}{148{,}000}$$

   WHERE:

   Q = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR,
   L = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET,
   D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND
   P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN POUNDS PER SQUARE INCH (PSI).

   THE HYDROSTATIC LEAKAGE RATE FOR DUCTILE IRON (DI) PIPE AND APPURTENANCES SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY FORMULAS IN AMERICA WATER WORKS ASSOCIATION (AWWA) C-600 AS REQUIRED IN 30 TAC §290.44(A)(5). PLEASE ENSURE THAT THE FORMULA FOR THIS CALCULATION IS CORRECT AND MOST CURRENT FORMULA IS IN USE;

   $$L = \frac{SDvP}{148{,}000}$$

   WHERE:

   L = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR,
   S = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET,
   D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND
   P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN POUNDS PER SQUARE INCH (PSI).

8. PROJECTS CONSTRUCTED ON OR AFTER JANUARY 4, 2014 MUST COMPLY WITH CHANGES TO THE SAFE DRINKING WATER ACT THAT REDUCE THE MAXIMUM ALLOWABLE LEAD CONTENT OF PIPES, PIPE FITTINGS, PLUMBING FITTINGS, AND FIXTURES TO 0.25 PERCENT.
9. THE SYSTEM MUST BE DESIGNED TO MAINTAIN A MINIMUM PRESSURE OF 35 PSI AT ALL POINTS WITHIN THE DISTRIBUTION NETWORK AT FLOW RATES OF AT LEAST 1.5 GALLONS PER MINUTE PER CONNECTION. WHEN THE SYSTEM IS INTENDED TO PROVIDE FIREFIGHTING CAPABILITY, IT MUST ALSO BE DESIGNED TO MAINTAIN A MINIMUM PRESSURE OF 20 PSI UNDER COMBINED FIRE AND DRINKING WATER FLOW CONDITIONS AS REQUIRED BY 30 TAC §290.44(D).
10. THE CONTRACTOR SHALL INSTALL APPROPRIATE AIR RELEASE DEVICES IN THE DISTRIBUTION SYSTEM AT ALL POINTS WHERE TOPOGRAPHY OR OTHER FACTORS MAY CREATE AIR LOCKS IN THE LINES. ALL VENT OPENINGS TO THE ATMOSPHERE SHALL BE COVERED WITH 16-MESH OR FINER, CORROSION RESISTANT SCREENING MATERIAL OR AN ACCEPTABLE EQUIVALENT AS REQUIRED BY 30 TAC §290.44(D)(1).
11. PURSUANT TO 30 TAC §290.44(D)(4), ACCURATE WATER METERS SHALL BE PROVIDED. SERVICE CONNECTIONS AND METER LOCATIONS SHOULD BE SHOWN ON THE PLANS.
12. PURSUANT TO 30 TAC §290.44(D)(5), SUFFICIENT VALVES AND BLOWOFFS TO MAKE REPAIRS. THE ENGINEERING REPORT SHALL ESTABLISH CRITERIA FOR THIS DESIGN.
13. PURSUANT TO 30 TAC §290.44(D)(6), THE SYSTEM SHALL BE DESIGNED TO AFFORD EFFECTIVE CIRCULATION OF WATER WITH A MINIMUM OF DEAD ENDS. ALL DEAD-END MAINS SHALL BE PROVIDED WITH ACCEPTABLE FLUSH VALVES AND DISCHARGE PIPING. ALL DEAD-END LINES LESS THAN TWO INCHES IN DIAMETER WILL NOT REQUIRE FLUSH VALVES IF THEY END AT A CUSTOMER SERVICE. WHERE DEAD ENDS ARE NECESSARY AS A STAGE IN THE GROWTH OF THE SYSTEM, THEY SHALL BE LOCATED AND ARRANGED TO ULTIMATELY CONNECT THE ENDS TO PROVIDE CIRCULATION.
14. THE CONTRACTOR SHALL MAINTAIN A MINIMUM SEPARATION DISTANCE IN ALL DIRECTIONS OF NINE FEET BETWEEN THE PROPOSED WATERLINE AND WASTEWATER COLLECTION FACILITIES INCLUDING MANHOLES AND SEPTIC TANK DRAINFIELDS. IF THIS DISTANCE CANNOT BE MAINTAINED, THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE PROJECT ENGINEER FOR FURTHER DIRECTION. SEPARATION DISTANCES, INSTALLATION METHODS, AND MATERIALS UTILIZED MUST MEET 30 TAC §290.44(E)(1-4) OF THE CURRENT RULES. REVISED: JANUARY 10, 2014 3
15. PURSUANT TO 30 TAC §290.44(E)(5), THE SEPARATION DISTANCE FROM A POTABLE WATERLINE TO A WASTEWATER MAIN OR LATERAL MANHOLE OR CLEANOUT SHALL BE A MINIMUM OF NINE FEET. WHERE THE NINE-FOOT SEPARATION DISTANCE CANNOT BE ACHIEVED, THE POTABLE WATERLINE SHALL BE ENCASED IN A JOINT OF AT LEAST 150 PSI PRESSURE CLASS PIPE AT LEAST 18 FEET LONG AND TWO NOMINAL SIZES LARGER THAN THE NEW CONVEYANCE. THE SPACE AROUND THE CARRIER PIPE SHALL BE SUPPORTED AT FIVE-FOOT INTERVALS WITH SPACERS OR BE FILLED TO THE SPRINGLINE WITH WASHED SAND. THE ENCASEMENT PIPE SHALL BE CENTERED ON THE CROSSING AND BOTH ENDS SEALED WITH CEMENT GROUT OR MANUFACTURED SEALANT.
16. PURSUANT TO 30 TAC §290.44(E)(6), FIRE HYDRANTS SHALL NOT BE INSTALLED WITHIN NINE FEET VERTICALLY OR HORIZONTALLY OF ANY WASTEWATER LINE, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE REGARDLESS OF CONSTRUCTION.
17. PURSUANT TO 30 TAC §290.44(E)(7), SUCTION MAINS TO PUMPING EQUIPMENT SHALL NOT CROSS WASTEWATER MAINS, WASTEWATER LATERALS, OR WASTEWATER SERVICE LINES. RAW WATER SUPPLY LINES SHALL NOT BE INSTALLED WITHIN FIVE FEET OF ANY TILE OR CONCRETE WASTEWATER MAIN, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE.
18. PURSUANT TO 30 TAC §290.44(E)(8), WATERLINES SHALL NOT BE INSTALLED CLOSER THAN TEN FEET TO SEPTIC TANK DRAINFIELDS.
19. PURSUANT TO 30 TAC §290.44(F)(1), THE CONTRACTOR SHALL NOT PLACE THE PIPE IN WATER OR WHERE IT CAN BE FLOODED WITH WATER OR SEWAGE DURING ITS STORAGE OR INSTALLATION.
20. PURSUANT TO 30 TAC §290.44(F)(2), WHEN WATERLINES ARE LAID UNDER ANY FLOWING OR INTERMITTENT STREAM OR SEMI-PERMANENT BODY OF WATER THE WATER MAIN SHALL BE INSTALLED IN A SEPARATE WATERTIGHT PIPE ENCASEMENT. VALVES MUST BE PROVIDED ON EACH SIDE OF THE CROSSING WITH FACILITIES TO ALLOW THE UNDERWATER PORTION OF THE SYSTEM TO BE ISOLATED AND TESTED.
21. THE CONTRACTOR SHALL DISINFECT THE NEW WATER MAINS IN ACCORDANCE WITH AWWA STANDARD C-651 AND THEN FLUSH AND SAMPLE THE LINES BEFORE BEING PLACED INTO SERVICE. SAMPLES SHALL BE COLLECTED FOR MICROBIOLOGICAL ANALYSIS TO CHECK THE EFFECTIVENESS OF THE DISINFECTION PROCEDURE WHICH SHALL BE REPEATED IF CONTAMINATION PERSISTS. A MINIMUM OF ONE SAMPLE FOR EACH 1,000 FEET OF COMPLETED WATER LINE WILL BE REQUIRED OR AT THE NEXT AVAILABLE SAMPLING POINT BEYOND 1,000 FEET AS DESIGNATED BY THE DESIGN ENGINEER, IN ACCORDANCE WITH 30 TAC §290.44(F)(3).

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY WATER STORAGE TANK GENERAL CONSTRUCTION NOTES

1. THE WATER STORAGE TANK MUST BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS 30 TEXAS ADMINISTRATIVE CODE (TAC) CHAPTER 290 SUBCHAPTER D. WHEN CONFLICTS ARE NOTED WITH LOCAL STANDARDS, THE MORE STRINGENT REQUIREMENT SHALL BE APPLIED. AT A MINIMUM, CONSTRUCTION FOR PUBLIC WATER SYSTEMS MUST ALWAYS MEET TCEQS RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS.
2. ALL FACILITIES FOR POTABLE WATER STORAGE SHALL BE COVERED AND DESIGNED, FABRICATED, ERECTED, TESTED AND DISINFECTED IN STRICT ACCORDANCE WITH CURRENT AMERICAN WATER WORKS ASSOCIATION (AWWA) STANDARDS AND SHALL BE PROVIDED WITH THE MINIMUM NUMBER, SIZE AND TYPE OF ROOF VENTS, MAN WAYS, DRAINS, SAMPLE CONNECTIONS, ACCESS LADDERS, OVERFLOWS, LIQUID LEVEL INDICATORS ON-SITE, AND OTHER APPURTENANCES AS SPECIFIED IN THESE RULES.
3. DISINFECTION OF WATER STORAGE FACILITIES SHALL BE IN STRICT ACCORDANCE WITH CURRENT AWWA STANDARD C652-11 OR MOST RECENT.
4. DECHLORINATION OF DISINFECTING WATER SHALL BE IN STRICT ACCORDANCE WITH CURRENT AWWA STANDARD C655-09 OR MOST RECENT.
5. BOLTED TANKS SHALL BE DESIGNED, FABRICATED, ERECTED AND TESTED IN STRICT ACCORDANCE WITH CURRENT AWWA STANDARD D103. WELDED TANKS SHALL BE DESIGNED, FABRICATED, ERECTED AND TESTED IN STRICT ACCORDANCE WITH CURRENT AWWA STANDARD D100. THE ROOF OF ALL METAL TANKS SHALL BE DESIGNED AND ERECTED SO THAT NO WATER PONDS AT ANY POINT ON THE ROOF AND, IN ADDITION, NO AREA OF THE ROOF SHALL HAVE A SLOPE OF LESS THAN 0.75 INCH PER FOOT. CONCRETE TANK ROOFS SHALL BE CONSTRUCTED IN STRICT COMPLIANCE WITH THEIR RESPECTIVE AWWA STANDARD.
6. ROOF VENTS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH CURRENT AWWA STANDARDS AND SHALL BE EQUIPPED WITH APPROVED SCREENS TO PREVENT ENTRY OF ANIMALS, BIRDS, INSECTS AND HEAVY AIR CONTAMINANTS. SCREENS SHALL BE FABRICATED OF CORROSION RESISTANT MATERIAL AND SHALL BE 16 MESH OR FINER. SCREENS SHALL BE SECURELY CLAMPED IN PLACE WITH STAINLESS OR GALVANIZED BANDS OR WIRES AND SHALL BE DESIGNED TO WITHSTAND WINDS OF NOT LESS THAN TANK DESIGN CRITERIA (UNLESS SPECIFIED OTHERWISE BY THE ENGINEER).
7. ALL ROOF OPENINGS SHALL BE DESIGNED IN ACCORDANCE WITH CURRENT AWWA STANDARDS. IF AN ALTERNATE 30 INCH DIAMETER ACCESS OPENING IS NOT PROVIDED IN A STORAGE TANK, THE PRIMARY ROOF ACCESS OPENING SHALL NOT BE LESS THAN 30 INCHES IN DIAMETER. OTHER ROOF OPENINGS REQUIRED ONLY FOR VENTILATING PURPOSES DURING CLEANING, REPAIRING OR PAINTING OPERATIONS SHALL BE NOT LESS THAN 24 INCHES IN DIAMETER OR AS SPECIFIED BY THE LICENSED PROFESSIONAL ENGINEER. AN EXISTING TANK WITHOUT A 30-INCH IN DIAMETER ACCESS OPENING MUST BE MODIFIED TO MEET THIS REQUIREMENT WHEN MAJOR REPAIR OR MAINTENANCE IS PERFORMED ON THE TANK. EACH ACCESS OPENING SHALL HAVE A RAISED CURBING AT LEAST FOUR INCHES IN HEIGHT WITH A LOCKABLE COVER THAT OVERLAPS THE CURBING AT LEAST TWO INCHES IN A DOWNWARD DIRECTION. WHERE NECESSARY, A GASKET SHALL BE USED TO MAKE A POSITIVE SEAL WHEN THE HATCH IS CLOSED. ALL HATCHES SHALL REMAIN LOCKED EXCEPT DURING INSPECTIONS AND MAINTENANCE.
8. OVERFLOWS SHALL BE DESIGNED IN STRICT ACCORDANCE WITH CURRENT AWWA STANDARDS AND SHALL TERMINATE WITH A GRAVITY-HINGED AND WEIGHTED COVER, AN ELASTOMERIC DUCKBILL VALVE, OR OTHER APPROVED DEVICE TO PREVENT THE ENTRANCE OF INSECTS AND OTHER NUISANCES. THE COVER SHALL FIT TIGHTLY WITH NO GAP OVER 1/16 INCHES. IF THE OVERFLOW TERMINATES AT ANY POINT OTHER THAN THE GROUND LEVEL, IT SHALL BE LOCATED NEAR ENOUGH AND AT A POSITION ACCESSIBLE FROM A LADDER OR THE BALCONY FOR INSPECTION PURPOSES. THE OVERFLOW(S) SHALL BE SIZED TO HANDLE THE MAXIMUM POSSIBLE FILL RATE WITHOUT EXCEEDING THE CAPACITY OF THE OVERFLOW(S). THE DISCHARGE OPENING OF THE OVERFLOW(S) SHALL BE ABOVE THE SURFACE OF THE GROUND AND SHALL NOT BE SUBJECT TO SUBMERGENCE.
9. ALL CLEARWELLS AND WATER STORAGE TANKS SHALL HAVE A LIQUID LEVEL INDICATOR LOCATED AT THE TANK SITE. THE INDICATOR CAN BE A FLOAT WITH A MOVING TARGET, AN ULTRASONIC LEVEL INDICATOR, OR A PRESSURE GAUGE CALIBRATED IN FEET OF WATER. IF AN ELEVATED TANK OR STANDPIPE HAS A FLOAT WITH MOVING TARGET INDICATOR, IT MUST ALSO HAVE A PRESSURE INDICATOR LOCATED AT GROUND LEVEL. PRESSURE GAUGES MUST NOT BE LESS THAN THREE INCHES IN DIAMETER AND CALIBRATED AT NOT MORE THAN TWO-FOOT INTERVALS. REMOTE READING GAUGES AT THE OWNER'S TREATMENT PLANT OR PUMPING STATION WILL NOT ELIMINATE THE REQUIREMENT FOR A GAUGE AT THE TANK SITE UNLESS THE TANK IS LOCATED AT THE PLANT OR STATION.
10. INLET AND OUTLET CONNECTIONS SHALL BE LOCATED SO AS TO PREVENT SHORT CIRCUITING OR STAGNATION OF WATER. CLEARWELLS USED FOR DISINFECTANT CONTACT TIME SHALL BE APPROPRIATELY BAFFLED.
11. CLEARWELLS AND POTABLE WATER STORAGE TANKS SHALL BE THOROUGHLY TIGHT AGAINST LEAKAGE, SHALL BE LOCATED ABOVE THE GROUND WATER TABLE AND SHALL HAVE NO WALLS IN COMMON WITH ANY OTHER PLANT UNITS CONTAINING WATER IN THE PROCESS OF TREATMENT. ALL ASSOCIATED APPURTENANCES INCLUDING VALVES, PIPES AND FITTINGS SHALL BE TIGHT AGAINST LEAKAGE.
12. EACH CLEARWELL OR POTABLE WATER STORAGE TANK SHALL BE PROVIDED WITH A MEANS OF REMOVING ACCUMULATED SILT AND DEPOSITS AT ALL LOW POINTS IN THE BOTTOM OF THE TANK. DRAINS SHALL NOT BE CONNECTED TO ANY WASTE OR SEWAGE DISPOSAL SYSTEM AND SHALL BE CONSTRUCTED SO THAT THEY ARE NOT A POTENTIAL AGENT IN THE CONTAMINATION OF THE STORED WATER.
13. ALL CLEAR WELLS, GROUND STORAGE TANKS, STANDPIPES, AND ELEVATED TANKS SHALL BE PAINTED, DISINFECTED, AND MAINTAINED IN STRICT ACCORDANCE WITH CURRENT AWWA STANDARDS. HOWEVER, NO TEMPORARY COATINGS, WAX GREASE COATINGS, OR COATING MATERIALS CONTAINING LEAD WILL BE ALLOWED. NO OTHER COATINGS WILL BE ALLOWED WHICH ARE NOT APPROVED FOR USE (AS A CONTACT SURFACE WITH POTABLE WATER) BY THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA), NSF INTERNATIONAL, OR THE UNITED STATES FOOD AND DRUG ADMINISTRATION (FDA). ALL NEWLY INSTALLED COATINGS MUST CONFORM TO ANSI/NSF INTERNATIONAL STANDARD 61 AND MUST BE CERTIFIED BY AN ORGANIZATION ACCREDITED BY ANSI.
14. NO TANKS OR CONTAINERS SHALL BE USED TO STORE POTABLE WATER THAT HAS PREVIOUSLY BEEN USED FOR ANY NON-POTABLE PURPOSE. WHERE A USED TANK IS PROPOSED FOR USE, A LETTER FROM THE PREVIOUS OWNER OR OWNERS MUST BE SUBMITTED TO THE COMMISSION WHICH STATES THE USE OF THE TANK.
15. ACCESS MANWAYS IN THE RISER PIPE, SHELL AREA, ACCESS TUBE, BOWL AREA OR ANY OTHER LOCATION OPENING DIRECTLY INTO THE WATER COMPARTMENT SHALL BE LOCATED IN STRICT ACCORDANCE WITH CURRENT AWWA STANDARDS. THESE OPENINGS SHALL NOT BE LESS THAN 24 INCHES IN DIAMETER. HOWEVER, IN THE CASE OF A RISER PIPE OR ACCESS TUBE OF 36 INCHES IN DIAMETER OR SMALLER, THE ACCESS MANWAY MAY BE 18 INCHES TIMES 24 INCHES WITH THE VERTICAL DIMENSION NOT LESS THAN 24 INCHES. THE PRIMARY ACCESS MANWAY IN THE LOWER RING OR SECTION OF A GROUND STORAGE TANK SHALL BE NOT LESS THAN 30 INCHES IN DIAMETER. WHERE NECESSARY, FOR ANY ACCESS MANWAY WHICH ALLOWS DIRECT ACCESS TO THE WATER COMPARTMENT, A GASKET SHALL BE USED TO MAKE A POSITIVE SEAL WHEN THE ACCESS MANWAY IS CLOSED.
16. SERVICE PUMP INSTALLATION TAKING SUCTION FROM STORAGE TANKS SHALL PROVIDE AUTOMATIC LOW WATER LEVEL CUTOFF DEVICES TO PREVENT DAMAGE TO THE PUMPS. THE SERVICE PUMP CIRCUITRY SHALL ALSO RESUME PUMPING AUTOMATICALLY ONCE THE MINIMUM WATER LEVEL IS REACHED IN THE TANK.
17. PURSUANT TO 30 TAC §290.44(B)(1), THE MAXIMUM ALLOWABLE LEAD CONTENT OF PIPES, PIPE FITTINGS, PLUMBING FITTINGS, AND FIXTURES IS 0.25 PERCENT.

REV. NO.	BY	DATE	REVISION DESCRIPTION

STATE OF TEXAS
DALE P. MURPHY
90614
LICENSED
PROFESSIONAL ENGINEER
11/04/2022

K FRIESE & ASSOCIATES, INC.
1120 S. CAPITAL OF TEXAS HWY, II-100, AUSTIN, TX 78746

CITY OF LEANDER
SAN GABRIEL EAST ELEVATED STORAGE TANK

TCEQ CONTRIBUTING ZONE NOTES

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
FIRM #6535

CITY OF LEANDER

SCALE	
DATE	10/28/2022
SHEET NUMBER	C3 OF C21 3 OF 34

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)
TEXAS POLLUTION DISCHARGE ELIMINATION SYSTEM (TPDES)

SEE STORMWATER POLLUTION PREVENTION PLAN FOR ATTACHMENTS:

1. TCEQ CONSTRUCTION SITE NOTICE
2. WEEKLY INSPECTION AND MAINTENANCE REPORT (FORM 1)
3. DATES OF MAJOR CONSTRUCTION ACTIVITIES (FORM 2)
4. TPDES GENERAL PERMIT
5. SURFACE WATER QUALITY STANDARDS (30 TAC 307.4)

GENERAL

THIS DOCUMENT PROVIDES PROCEDURES TO MANAGE THE QUALITY OF STORM WATER RUNOFF FROM CONSTRUCTION ACTIVITIES IN COMPLIANCE WITH STATE TPDES STORM WATER REGULATIONS. IN CONJUNCTION WITH THIS DOCUMENT THE CONTRACTOR WILL RETAIN ONE SET OF DESIGN PLANS MARKED AS "SWPPP DESIGN PLAN SET", THE SWPPP DESIGN PLAN SET WILL BE KEPT ON-SITE WITH THE SWPPP DOCUMENT, A COPY OF THE TPDES GENERAL PERMIT FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES IS INCLUDED WITHIN THE SWPPP.

OWNER NAME AND ADDRESS:
CITY OF LEANDER
200 W. WILLIS ST.
LEANDER, TEXAS 78641

CONTRACTOR'S RESPONSIBILITIES:

1. PREPARE AND MAIL TCEQ NOTICE OF INTENT FOR CONTRACTOR.
2. PERFORM DAY TO DAY, ON-SITE, SWPPP OPERATIONAL CONTROL IN COMPLIANCE WITH THE TPDES GENERAL PERMIT.
3. PROVIDE A STORM WATER INSPECTOR THAT IS FAMILIAR WITH THIS SWPPP.
4. MAINTAIN SWPPP RECORDS ON-SITE AND AS PART OF THIS PLAN.
5. MANAGE SUBCONTRACTOR'S STORM WATER PERFORMANCE.
6. POST AND MAINTAIN TCEQ CONSTRUCTION SITE NOTICE AT ENTRANCE OF SITE.
7. IDENTIFY LOCATIONS WHERE STORM WATER DISCHARGES FROM THE SITE AND FLOWS TO WATERS OF STATE OR SURFACE TRIBUTARIES. MARK THESE LOCATIONS ON THE EROSION AND SEDIMENTATION CONTROL PLAN SHEET AND LABEL "OFF-SITE DRAINAGE LOCATION"

OWNER'S RESPONSIBILITIES:

1. OWNER IS OPERATOR WITH CONTROL OVER SWPPP CONSTRUCTION PLANS AND SPECIFICATIONS.
2. PROVIDE STORM WATER POLLUTION PREVENTION PLAN.
3 DESIGN, SIZE, AND LOCATE TEMPORARY AND PERMANENT EROSION AND SEDIMENTATION CONTROLS, BEST MANAGEMENT PRACTICES, SPILL PREVENTION, AND WASTE MANAGEMENT PRACTICES.
4. PREPARE AND MAIL TCEQ NOTICE OF INTENT FOR OWNER.

RECORDS

THE CONTRACTOR WILL MAINTAIN THE FOLLOWING RECORDS ON-SITE AS PART OF THIS PLAN.

1. CONTRACTOR CONSTRUCTION ACTIVITY DATES
   a) THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR.
   b) THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE.
   c) THE DATES WHEN STABILIZATION MEASURES ARE INITIATED.

2. CONTRACTOR INSPECTION FORMS
   a) INSPECTION AND MAINTENANCE REPORTS.
   b) RECORDS THAT INDICATE ANY PROBLEMS WITH CONTROLS AND CONTRACTOR'S EFFORTS TO REPAIR THE CONTROLS.

3. NOTES
   a) ANNOTATION OF ANY OWNER'S, ENGINEER'S OR REGULATORY AGENCY'S INSPECTOR'S COMMENTS RELATIVE TO TEMPORARY EROSION AND SEDIMENT CONTROLS.
   b) ANNOTATION OF CONTRACTOR'S RESPONSE TO REPAIR THE TEMPORARY EROSION AND SEDIMENT CONTROLS.
   c) SWPPP MUST BE UPDATED AS NECESSARY TO REFLECT ANY CHANGES IN SITE CONDITIONS OR BEST MANAGEMENT PRACTICES OR CONTROLS.

RECORD RETENTION
EACH PERMITEE MUST RETAIN THE FOLLOWING RECORDS FOR A MINIMUM OF 3 YEARS FROM THE DATE OF FINAL STABILIZATION:

1. A COPY OF THE SWPPP.
2. ALL REPORTS AND ACTIONS REQUIRED BY THIS PERMIT. INCLUDING COPY OF TCEQ CONSTRUCTION SITE NOTICE.
3. ALL DATA USED TO COMPLETE THE TCEQ NOTICE OF INTENT (NOI) OR CONSTRUCTION SITE NOTICE.

EROSION AND SEDIMENT CONTROLS

POTENTIAL POLLUTANTS

POTENTIAL SOURCES OF STORM WATER POLLUTION FROM THE CONSTRUCTION OF THE PROJECT ARE:

1. DISTURBED SOILS FROM THE CONSTRUCTION SITE

INCREASED SEDIMENT LOADING IN STORM WATER CAN BE ATTRIBUTED TO: A) DIRECT RAINFALL ONTO DISTURBED SOIL AREAS, STOCKPILES, SAND, GRAVEL, AND ROCK AREAS WHERE RAINS DISLODGE SOIL PARTICLES; B) EROSION OF DISTURBED SOIL AREAS; C) THE TRANSFER OF SOILS BY EQUIPMENT OR VEHICLE TIRES ONTO DISTURBED AND NON-DISTURBED AREAS WHERE THEY ARE WASHED INTO DRAINAGE DITCHES OR OTHER SIMILAR WATER CONVEYANCE FEATURE.

2. OIL, GREASE, HYDRAULIC FLUIDS, AND FUELS FROM THE OPERATION OF EQUIPMENT ON THE SITE.

THERE IS A POTENTIAL FOR STORM WATER CONTAMINATION IN THE FORM OF OIL, GREASE, HYDRAULIC FLUID, AND FUEL FROM EQUIPMENT AND VEHICLES ON THE SITE. THESE SUBSTANCES ARE TYPICALLY RELEASED TO THE ENVIRONMENT BECAUSE OF EQUIPMENT FAILURE AND DURING MAINTENANCE OPERATIONS.

SITE LOCATION MAP
SEE CONSTRUCTION DRAWING PLAN SET PROJECT LOCATION MAP.

DETAILED SITE MAP
SEE CONSTRUCTION DRAWING PLAN SET SITE MAP.

RECEIVING WATERS
THE PROJECT IS WITHIN THE SOUTH SAN GABRIEL RIVER WATERSHED AND DRAINS TO THE BRAZOS RIVER.

STATE AND LOCAL PLANS
THE SWPPP IS CONSISTENT WITH REQUIREMENTS SPECIFIED IN APPLICABLE STORM WATER, WATER QUALITY, SEDIMENT, AND EROSION SITE PLANS, PERMITS OR SIMILAR ORDINANCES OF LOCAL, STATE, OR FEDERAL OFFICIALS.

THIS PROJECT IS NOT LOCATED WITHIN THE RECHARGE ZONE OR TRANSITION ZONE OF THE EDWARDS AQUIFER.

SEQUENCE OF MAJOR ACTIVITIES

1. INSTALLATION OF TEMPORARY EROSION CONTROLS.
2. SITE DEMOLITION AND GRADING.
3. CONSTRUCTION OF FACILITIES.
4. SITE RESTORATION.
5. ASPHALT REPAIR, SEEDING, RE-VEGETATION, AND SOIL SURFACE PROTECTION.
6. REMOVAL OF TEMPORARY EROSION AND SEDIMENTATION CONTROLS.

TEMPORARY AND PERMANENT EROSION CONTROLS
TEMPORARY EROSION AND SEDIMENT CONTROLS WILL CONSIST OF SILT FENCE AND ROCK BERMS ON THE DOWN-GRADIENT PERIMETER OF THE SITE, PRESERVATION OF NATURAL VEGETATION WHERE AVAILABLE AND RECURRING CLEAN UP OF MUD/SOIL TRACKED ONTO ROADWAY.

PERMANENT CONTROLS MAY CONSIST OF ROCK BERMS, GRAVEL, ROAD BASE, DIVERSION DIKES, SWALES, AND RE-VEGETATION. PERMANENT WARM SEASON VEGETATION WILL SERVE AS FINAL STABILIZATION AND WILL REDUCE SURFACE EROSION ON AREAS NOT COVERED BY ASPHALT, CONCRETE, GRAVEL, OR COMPACTED ROAD BASE.

PERMANENT AND TEMPORARY EROSION AND SEDIMENT CONTROLS TRAP SEDIMENT BY CAUSING WATER TO POOL, THUS ALLOWING SEDIMENT TO SETTLE OUT OF THE WATER. CONTROLS PLACED ALONG GRADES ALSO DECREASE WATER VELOCITY AND THEREFORE DECREASE EROSIVE FORCES. A COMBINATION OF CONTROLS THAT POOL AND SLOW WATER, COMBINED WITH SOIL PROTECTING MATERIALS AND PRESERVATION OF NATURAL VEGETATION IN HIGH GRADE SLOPE AREAS GENERALLY WORKS BEST FOR CONTAINING SEDIMENT AND REDUCING EROSION.

FOR SPECIFIC LOCATION AND SELECTION OF TEMPORARY AND PERMANENT CONTROLS REFER TO EROSION AND SEDIMENTATION CONTROL PLAN OR SITE PLAN WITHIN CONSTRUCTION DRAWING PLAN SET.

TEMPORARY STABILIZATION
STABILIZATION MEASURES WILL BE INITIATED IN PORTIONS OF THE PROJECT SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED FOR 14 DAYS, BUT IN NO CIRCUMSTANCE MORE THAN 21 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE PROJECT SITE HAS TEMPORARILY OR PERMANENTLY CEASED.

FINAL STABILIZATION
FINAL STABILIZATION OF SITE WILL CONSIST OF ESTABLISHMENT OF PERMANENT WARM SEASON VEGETATION ON PORTIONS OF THE SITE NOT COVERED BY CONCRETE, GRAVEL, ROAD BASE, OR ROCK. ESTABLISHMENT OF PERMANENT VEGETATION SUITABLE FOR TPDES GENERAL PERMIT COMPLIANCE MUST MEASURE 70% AERIAL COVERAGE (COMPARED TO BACKGROUND NATIVE VEGETATION AERIAL COVERAGE PERCENTAGE) WITH NO LARGE BARE AREAS. CONTRACTOR MUST MEET VEGETATIVE REQUIREMENT IDENTIFIED BY THE ENGINEER WITHIN THE CONTRACT SPECIFICATION, OR THE HIGHEST REQUIREMENT.

SPOIL/FILL MANAGEMENT
ALL SOIL STOCKPILE, EXCAVATION SPOIL MATERIAL, AND ON-SITE SPOIL DISPOSAL AREAS SHALL BE MANAGED BY THE CONTRACTOR IN A MANNER THAT WILL MINIMIZE OR ATTEMPT TO ELIMINATE THE AMOUNT OF SEDIMENT THAT MAY ENTER RECEIVING WATERS AND SHALL NOT BE LOCATED IN ANY WETLAND, FLOODPLAIN, STREAMBED, DITCH, OR OTHER SIMILAR WATER FEATURE OR CONVEYANCE.

OFF-SITE VEHICLE TRACKING
OFF SITE VEHICLE TRACKING OF SOIL BY VEHICLES AND EQUIPMENT SHALL BE MINIMIZED AND CONTROLLED BY THE CONTRACTOR. SOIL SHALL BE REMOVED FROM SITE ROADWAYS, ENTRANCE, AND ACCESS ROADS AS NECESSARY TO PREVENT SEDIMENT FROM ENTERING RECEIVING WATERS.

DUST CONTROL
DUST WILL BE CONTROLLED BY PERIODIC WETTING WITH WATER TRUCKS DURING DRY PERIODS.

DEWATERING AND NON-STORMWATER DISCHARGES
ANY NON-STORM WATER DISCHARGES FROM THE CONSTRUCTION SITE WILL BE CONTROLLED AND MANAGED BY THE CONTRACTOR IN COMPLIANCE WITH ALL TCEQ AND LOCAL WATER QUALITY DISCHARGE REQUIREMENTS, INCLUDING BUT NOT LIMITED TO 30 TAC 307, SURFACE WATER QUALITY STANDARDS FOR THE STATE OF TEXAS.

THE FOLLOWING NON-STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES ARE ACCEPTABLE:

1. DISCHARGES FROM FIRE FIGHTING ACTIVITIES.
2. FIRE HYDRANT FLUSHINGS.
3. VEHICLE, EXTERNAL BUILDING, AND PAVEMENT WASH WATER WHERE DETERGENTS AND SOAPS ARE NOT USED AND WHERE SPILLS OR LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE NOT OCCURRED (UNLESS SPILLED MATERIALS HAVE BEEN REMOVED; AND IF LOCAL STATE, OR FEDERAL REGULATIONS ARE APPLICABLE, THE MATERIALS ARE REMOVED ACCORDING TO THOSE REGULATIONS), AND WHERE THE PURPOSE IS TO REMOVE MUD, DIRT, AND DUST.
4. WATER USED TO CONTROL DUST.
5. POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS.
6. AIR CONDITIONING CONDENSATE.
7. UNCONTAMINATED GROUND WATER OR SPRING WATER, INCLUDING FOUNDATION OR FOOTING DRAINS WHERE FLOWS ARE NOT CONTAMINATED WITH INDUSTRIAL MATERIALS SUCH AS SOLVENTS OR OTHER POLLUTANTS.

NON-STORM WATER DISCHARGES WILL, AT A MINIMUM, FLOW THROUGH SILT FENCE, OR OTHER SUITABLE STRUCTURAL CONTROLS, AND NATURAL VEGETATION (IF AVAILABLE) PRIOR TO LEAVING THE SITE, AS NECESSARY TO MEET COMPLIANCE REQUIREMENTS WITH ALL STATE AND LOCAL WATER QUALITY DISCHARGE REQUIREMENTS, INCLUDING BUT NOT LIMITED TO 30 TAC 307 OR 26 TWC 121, SURFACE WATER QUALITY STANDARDS AND WATER QUALITY CONTROL FOR THE STATE OF TEXAS RESPECTIVELY.

INSPECTION AND MAINTENANCE PROCEDURES

THE FOLLOWING PROCEDURES WILL BE USED TO INSPECT AND MAINTAIN EROSION AND SEDIMENT CONTROLS ON THE CONSTRUCTION SITE.

INSPECTION
ALL CONTROLS WILL BE INSPECTED BY THE CONTRACTOR AT LEAST ONCE PER WEEK ON A SPECIFIC DAY OF THE WEEK SELECTED BY THE CONTRACTOR AT BEGINNING OF PROJECT. (I.E. EACH MONDAY).

AN INSPECTION AND MAINTENANCE REPORT (SEE COPY OF FORM 1 IN SWPPP) WILL BE PERFORMED AND DOCUMENTED DURING EACH WEEKLY INSPECTION. EACH INSPECTION REPORT WILL NOTE ANY EROSION AND SEDIMENTATION CONTROL ITEMS IN NEED OF REPAIR SUCH AS: DETACHED SILT FENCE, HOLES/BREACHES UNDER SILT FENCE/ROCK BERMS, AND SEDIMENT BUILD-UP DEPTH CAPTURED BY CONTROLS, ETCETERA.

WHERE A REPORT DOES NOT IDENTIFY ANY INCIDENTS OF NON-COMPLIANCE NOR ANY ITEMS REQUIRING MAINTENANCE, THE REPORT MUST CONTAIN A CERTIFICATION BY THE CONTRACTORS' CERTIFYING EXECUTIVE OFFICER THAT THIS FACILITY OR SITE IS IN COMPLIANCE WITH THE SWPPP AND THE TPDES GENERAL PERMIT (SEE RECORDS SECTION ABOVE). IF THE INSPECTION REPORTS IDENTIFY ITEMS OF NON-COMPLIANCE OR ITEMS THAT REQUIRE MAINTENANCE THEN NO-ONE IS REQUIRED TO SIGN OR CERTIFY THE INSPECTION REPORTS.

DIVERSION DIKES, BERMS, OR SWALES WILL BE INSPECTED AND ANY BREACHES OR AREAS WHERE SEDIMENT HAS ESCAPED THE SITE WILL BE NOTED AS WELL.

REPORTS WILL ADDRESS CONTROLS THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION AND LOCATIONS WHERE ADDITIONAL MEASURES ARE REQUIRED.

WHEN A CONTROL FAILS TO OPERATE AS DESIGNED, PROVES INADEQUATE FOR A PARTICULAR LOCATION, WHERE ADDITIONAL MEASURES ARE REQUIRED, OR A CONTROL BECOMES DAMAGED TO ESSENTIALLY CAUSE MAJOR REPAIR OR REINSTALLATION, THE CONTRACTOR WILL NOTIFY THE ENGINEER AND THE OWNER IMMEDIATELY.

SEDIMENT BASINS WILL BE INSPECTED FOR DEPTH OF SEDIMENT.

QUALIFICATIONS OF THE INSPECTOR
THE CONTRACTOR WILL SELECT, AND TRAIN AS NECESSARY, DESIGNATED PERSONNEL RESPONSIBLE FOR INSPECTION, REPAIR, SEDIMENT REMOVAL, AND ANY OTHER RELATED MAINTENANCE REQUIRED FOR KEEPING EROSION AND SEDIMENT CONTROLS IN GOOD WORKING ORDER. THE INSPECTION PERSONNEL MUST BE FAMILIAR WITH THIS SWPPP. THE CONTRACTOR SHALL COMPLY WITH THE INSPECTION REQUIREMENTS SPECIFIED IN THE TPDES PERMIT IN SECTION VI.

MAINTENANCE
ALL CONTROLS WILL BE MAINTAINED IN EFFECTIVE WORKING ORDER.

IF REPAIRS ARE NEEDED THEY WILL BE PERFORMED WITHIN 48 HOURS OF THE REPORT. IN THE CASE THAT ON-SITE PERSONNEL ARE NOT CAPABLE (DUE TO A NEED FOR MATERIALS) TO PERFORM THE REPAIR, A PRACTICABLE SCHEDULE WILL BE DEVELOPED AND DOCUMENTED WITHIN THE 48 HOUR PERIOD AS TO WHEN THE REPAIR WILL OCCUR.

ACCUMULATED SEDIMENT WILL BE REMOVED WHEN IT REACHES A DEPTH OF SIX (6) INCHES AS MEASURED FROM THE BASE OF THE CONTROL (SILT FENCE, ROCK BERM, DIVERSION DIKE OR SWALE).

IN THE UNLIKELY EVENT SEDIMENT ESCAPES THE CONSTRUCTION SITE, OFF-SITE ACCUMULATIONS OF SEDIMENT WILL BE REMOVED AT A FREQUENCY SUFFICIENT TO MINIMIZE OFF-SITE IMPACTS, AND COMPLY WITH ALL RELEVANT LOCAL, STATE, AND FEDERAL REGULATIONS.

SPILL PREVENTION AND RESPONSE

SPILL PREVENTION, CONTROL, CLEAN-UP AND REPORTING SHALL COMPLY WITH TCEQ REGULATIONS 30 TAC, CHAPTER 327 - SPILL PREVENTION AND CONTROL, AND ANY LOCAL REGULATIONS. ADDITIONALLY, THE CONTRACTOR WILL IMPLEMENT PROPER SPILL PREVENTION MEASURES AND MAINTAIN APPROPRIATE SPILL RESPONSE EQUIPMENT ON SITE.

SPILL PREVENTION AND CONTROL PRACTICES
IN THE EVENT OF A SPILL, ANY CONTAMINATED SOILS WILL BE PROMPTLY REMOVED, CONTAINERIZED, AND LABELED FOR PROPER DISPOSAL.

CONSTRUCTION STAGING AREAS AND VEHICLE MAINTENANCE AREAS RELATED TO THE PROJECT SHALL BE CONSTRUCTED BY THE CONTRACTOR IN A MANNER TO MINIMIZE THE RUNOFF OF POLLUTANTS, EROSION AND SEDIMENTATION CONTROLS WILL BE DEPLOYED BY THE CONTRACTOR AND WILL BE DRAWN ON THE SWPPP DESIGN PLAN SET OR ATTACHED TO THE SWPPP DOCUMENT.

ALL ON-SITE VEHICLES AND EQUIPMENT WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTATIVE MAINTENANCE. THE CONTRACTOR SHALL PROMPTLY REPAIR EQUIPMENT LEAKING OIL/HYDRAULIC FLUID/ETC. AND SHALL IMMEDIATELY REMOVE AND REPLACE, AS NECESSARY, ALL SOILS ON WHICH SUCH LEAKAGE OCCURRED. THE CONTRACTOR SHALL PREVENT THE SPREAD OF LEAKED FLUIDS OR FLUID CONTAMINATED MATERIALS FROM THE ORIGINAL LEAK AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER HANDLING AND DISPOSAL OF ALL CONTAMINATED MATERIALS.

PRECAUTIONS SHALL BE TAKEN DURING EQUIPMENT FUELING AND CHEMICAL TRANSFER OPERATIONS IN ORDER TO PREVENT SPILLS FROM OCCURRING AND TO MINIMIZE THE IMPACT OF ANY SPILL THAT DOES OCCUR. ALL FUEL AND CHEMICAL TRANSFERS SHALL BE CONTINUOUSLY MONITORED. ADDITIONALLY, THERE SHALL BE AN ON-SITE PROHIBITION AGAINST THE TOPPING OFF OF TANKS AND EQUIPMENT.

MATERIALS AND EQUIPMENT FOR SPILL CLEAN-UP, SUCH AS ABSORBENT, RAGS, SAND, SAWDUST, CONTAINERS, ETCETERA, WILL BE KEPT AVAILABLE ON-SITE.

SPILL REPORTING
AT A MINIMUM, ANY PRODUCTS IN THE FOLLOWING CATEGORIES ARE CONSIDERED HAZARDOUS: PETROLEUM PRODUCTS, PAINTS, ACIDS FOR CLEANING MASONRY OR CONCRETE SURFACES, CLEANING SOLVENTS, ASPHALT PRODUCTS, CHEMICAL ADDITIVES FOR SOIL STABILIZATION, OR CONCRETE-CURING COMPOUNDS OR ADDITIVES. IN THE EVENT OF A SPILL THAT MAY BE HAZARDOUS, IMMEDIATELY CONTACT THE CITY PROJECT INSPECTOR.

RELEASES OF REPORTABLE QUANTITIES
EPA HAS ISSUED REGULATIONS THAT DEFINE WHAT REPORTABLE QUANTITY LEVELS ARE FOR OIL AND HAZARDOUS SUBSTANCES. THESE REGULATIONS ARE FOUND AT 30 TAC CHAPTER 327, 40 CFR PART 110, 40 CFR 117, OR 40 CFR PART 302, REQUIREMENTS UNDER 30 TAC CHAPTER 327 WILL BE FOLLOWED TO ENSURE THAT THE SPILL IS CONTAINED AND DISPOSED OF IN AN EXPEDIENT AND THOROUGH MANNER AND THAT PROPER AUTHORITIES ARE KEPT INFORMED THROUGHOUT THE PROCESS.

IF THERE IS A REPORTABLE QUANTITY RELEASE DURING THE CONSTRUCTION PERIOD, THE FOLLOWING STEPS MUST BE TAKEN:

1. NOTIFY IMMEDIATELY:
   a. NATIONAL RESPONSE CENTER AT (800) 424-8802.
   b. STATE EMERGENCY RESPONSE CENTER (800) 832-8224

2. WITHIN 14 DAYS, MODIFY THE SWPPP WITH A WRITTEN DESCRIPTION OF THE RELEASE PROVIDING THE DATE AND CIRCUMSTANCES OF THE RELEASE AND THE STEPS TO BE TAKEN TO PREVENT ANOTHER RELEASE.

MATERIALS MANAGEMENT
ANY PETROLEUM PRODUCTS, CONSTRUCTION CHEMICALS, AND ALL WASTE MATERIAL USED BY THE CONTRACTOR WILL BE MANAGED SO THAT THEY DO NOT BECOME A POLLUTANT SOURCE IN STORM WATER DISCHARGES.

PETROLEUM PRODUCTS OR CHEMICALS WILL BE STORED INSIDE A SHELTERED AREA THAT IS NOT EXPOSED TO STORM WATER.

IF THE CONTRACTOR STORES BULK QUANTITIES (GREATER THAN 5 GALLONS) OF A CHEMICAL OR PETROLEUM PRODUCT, THE CONTRACTOR WILL PROVIDE SUITABLE SECONDARY CONTAINMENT. THE SECONDARY CONTAINMENT CAPACITY SHALL BE ADEQUATE TO CONTAIN THE CAPACITY OF THE LARGEST TANK/CONTAINER PLUS SUFFICIENT FREEBOARD TO CONTAIN PRECIPITATION. AN EFFORT WILL BE MADE TO STORE ONLY ENOUGH PRODUCT REQUIRED TO DO THE JOB.

ALL CONTAINERS WILL BE PROPERLY MARKED IN COMPLIANCE WITH TCEQ CHAPTER 25 TAC 295.182 TEXAS RIGHT TO KNOW ACT INVOLVING HAZARDOUS COMMUNICATION (HAZCOM). IF POSSIBLE ALL MATERIALS SHOULD REMAIN IN THE ORIGINAL MANUFACTURES CONTAINER WITH ORIGINAL MANUFACTURES PRODUCT LABEL.

PRODUCTS SHOULD BE "USED UP" TO THE MAXIMUM AMOUNT FEASIBLE PRIOR TO DISPOSING OF THE CONTAINER.

MATERIAL SAFETY DATA SHEETS (MSDS) WILL BE PROVIDED BY THE CONTRACTOR FOR ALL PRODUCTS BROUGHT ON-SITE.

WASTE DISPOSAL
ALL WASTE MATERIAL EXCEPT SCRAP TIMBER AND BRUSH WILL BE COLLECTED IN A SECURE METAL DUMPSTER, WHICH WILL BE REGULARLY EMPTIED.

NO CONSTRUCTION MATERIALS WILL BE BURIED OR BURNED ON THIS SITE.

WASTE PETROLEUM PRODUCTS AND WASTE CHEMICALS WILL BE PROPERLY DISPOSED OF OFF-SITE IN ACCORDANCE WITH STATE AND LOCAL WASTE DISPOSAL REGULATIONS.

SANITARY WASTE WILL BE COLLECTED AND DISPOSED OF PROPERLY IN ACCORDANCE WITH LOCAL REGULATIONS.

LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORM WATER SHALL BE PREVENTED FROM BECOMING A POLLUTANT SOURCE FOR STORM WATER DISCHARGE.

LITTER WILL BE PICKED UP DAILY

SITE INFORMATION

PROJECT NAME:	SAN GABRIEL EAST ELEVATED STORAGE TANK
LOCATION:	LEANDER, WILLIAMSON COUNTY, TEXAS
LATITUDE	30° 36' 14" N
LONGITUDE	97° 49' 11" W

NAME OF RECEIVING WATERS: THE PROJECT IS WITHIN THE SOUTH SAN GABRIEL RIVER WATERSHED AND DRAINS TO THE BRAZOS RIVER.

PLAN CERTIFICATION: THE PERMITTEE (OWNER AND CONTRACTOR) MUST COMPLY WITH ALL CONDITIONS OF THE TPDES GENERAL PERMIT. THE SWPPP MUST BE CERTIFIED BY A RESPONSIBLE CORPORATE EXECUTIVE OR OFFICIAL. IN SIGNING THE PLAN, THE CORPORATE OFFICER IS ATTESTING THAT THE INFORMATION IS TRUE AND ACCEPTS RESPONSIBILITY FOR ITS CONTENT. ALL NOTICES OF INTENT, REPORTS, AND CERTIFICATIONS OR INFORMATION SUBMITTED TO THE TCEQ SHALL ALSO BE SIGNED BY A RESPONSIBLE CORPORATE OFFICIAL. FOR CERTIFICATION SIGNATURES SEE CERTIFICATION SECTION WITHIN THE CONTRACT SPECIFICATION STORM WATER POLLUTION PREVENTION PLAN.

REV. NO.	BY	DATE	REVISION DESCRIPTION

STATE OF TEXAS
DALE P. MURPHY
90614
LICENSED
PROFESSIONAL ENGINEER
11/04/2022

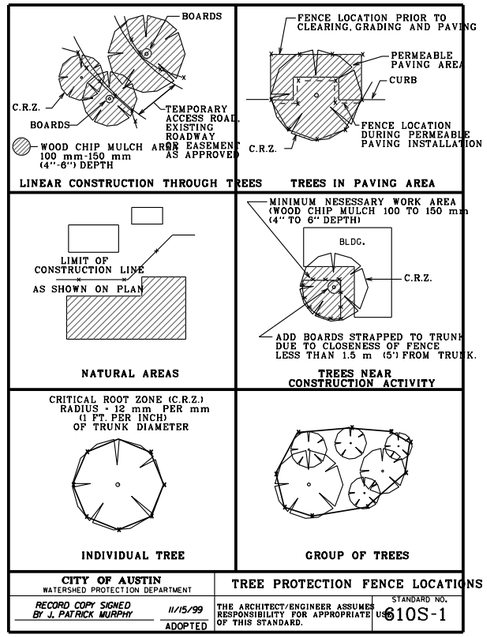
K FRIESE & ASSOCIATES, INC.
1120 S. CAPITAL OF TEXAS HWY, II-100, AUSTIN, TX 78746

CITY OF LEANDER
SAN GABRIEL EAST ELEVATED STORAGE TANK
SWPPP NOTES

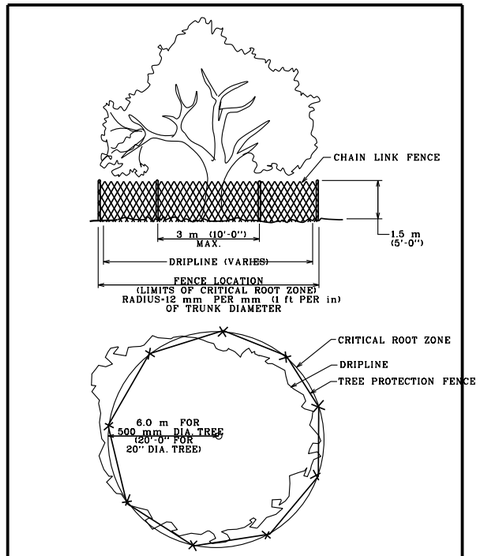
K FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
FIRM #6535

CITY OF LEANDER

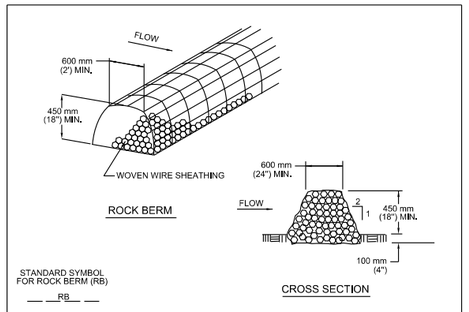
SCALE	
DATE	10/28/2022
SHEET NUMBER	C4 OF C21 4 OF 34



CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	TREE PROTECTION FENCE LOCATIONS	
RECORD COPY SIGNED BY J. PATRICK MURPHY 11/15/99 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 610S-1



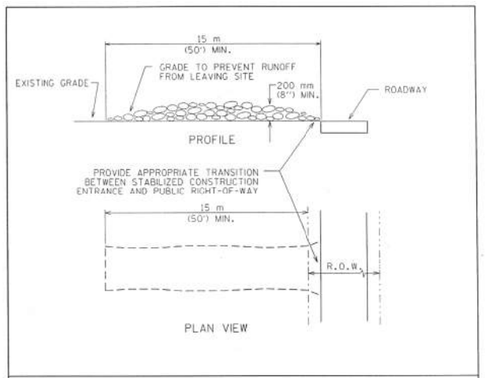
CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	TREE PROPTECTION FENCE TYPE A - CHAIN LINK	
RECORD COPY SIGNED BY J. PATRICK MURPHY 11/15/99 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 610S-2



NOTES:

1. USE ONLY OPEN GRADED ROCK 75 to 125 mm (3 to 5") DIAMETER FOR ALL CONDITIONS.
2. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM 25 mm (1") OPENING AND MINIMUM WIRE DIAMETER OF 12,9 mm (20 GAUGE).
3. THE ROCK BERM SHALL BE INSPECTED DAILY OR AFTER EACH RAIN, AND THE STONE AND/OR FABRIC CORE-WOVEN SHEATHING SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED, DUE TO SEDIMENT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
4. IF SEDIMENT REACHES A DEPTH EQUAL TO ONE-THIRD THE HEIGHT OF THE BERM OR 150 mm (6"), WHICHEVER IS LESS, THE SEDIMENT SHALL BE REMOVED AND DISPOSED OF ON AN APPROVED SITE AND IN A MANNER THAT WILL NOT CREATE A SEDIMENTION PROBLEM.
5. WHEN THE SITE IS COMPLETELY STABILIZED,THE BERM AND ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

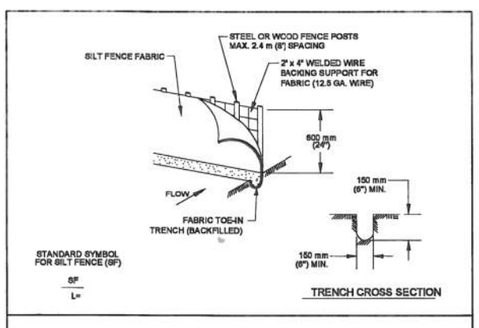
CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	ROCK BERM	
RECORD COPY SIGNED BY MORGAN BYARS 8/24/2010 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 639S-1



NOTES:

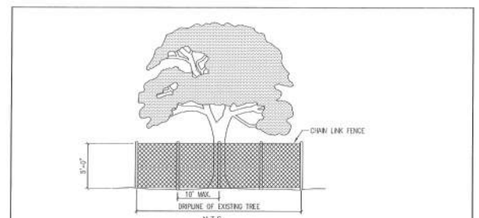
1. STONE SIZE: 75-125 mm (3-5") OPEN GRADED ROCK.
2. LENGTH: AS EFFECTIVE BUT NOT LESS THAN 15 m (50').
3. THICKNESS: NOT LESS THAN 200 mm (8").
4. WIDTH: NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS/EGRESS.
5. WASHING: WHEN NECESSARY, VEHICLE WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE AND DRAINS INTO AN APPROVED TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
6. MAINTENANCE: THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AS WELL AS REPAIR AND CLEAN OUT OF ANY MEASURE DEVICES USED TO TRAP SEDIMENT. ALL SEDIMENTS THAT IS SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
7. DRAINAGE: ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	STABILIZED CONSTRUCTION ENTRANCE	
5/23/06 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 641S-1



1. STEEL OR WOOD POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 300 mm (12 INCHES). IF WOOD POSTS CANNOT ACHIEVE 300 mm (12 Inches) DEPTH, USE STEEL POSTS.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW.
3. THE TRENCH MUST BE A MINIMUM OF 150 mm (6 Inches) DEEP AND 150 mm (6 Inches) WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE FABRIC SHOULD BE SECURELY FASTENED TO EACH STEEL OR WOOD SUPPORT POST OR TO WOVEN WIRE , WHICH IS IN TURN ATTACHED TO THE STEEL OR WOOD FENCE POST.
5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150 mm (6 Inches). THE SILT SHALL BE DISPOSED OF ON AN APPROVED SITE AND IN SUCH A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	SILT FENCE	
9/1/2011 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 642S-1



1. TREE PROTECTION FENCES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR GRADING).
2. FENCES SHALL COMPLETELY SURROUND THE TREE, OR CLUSTERS OF TREES; SHALL BE LOCATED AT THE OUTERMOST LIMIT OF THE TREE BRANCHES (DRIPLINE), AND SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROJECT IN ORDER TO PREVENT THE FOLLOWING:
   A. SOIL COMPACTION IN THE ROOT ZONE AREA RESULTING FROM VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MATERIALS.
   B. ROOT ZONE DISTURBANCES DUE TO GRADE CHANGES (GREATER THAN SIX INCHES (6")) CUT OR FILL, OR TRENCHING NOT REVIEWED AND AUTHORIZED BY THE CITY.
   C. WOUNDS TO EXPOSED ROOTS, TRUNKS OR LIMBS BY MECHANICAL EQUIPMENT.
   D. OTHER ACTIVITIES DETRIMENTAL TO TREES, SUCH AS CHEMICAL STORAGE, CEMENT TRUCK CLEANING AND FIRE.
3. EXCEPTIONS TO INSTALLING FENCES AT TREE DRIPLINES MAY BE PERMITTED IN THE FOLLOWING CASES:
   A. WHERE PERMEABLE PAVING IS TO BE INSTALLED, ERECT THE FENCE AT THE OUTER LIMITS OF THE PERMEABLE PAVING AREA.
   B. WHERE TREES ARE CLOSE TO PROPOSED BUILDINGS, ERECT THE FENCE NO CLOSER THAN SIX FEET (6'-0") TO BUILDING.
4. CRITICAL ROOT ZONE REQUIREMENTS
   A. NO CONSTRUCTION OR DISTURBANCE SHALL OCCUR WITHIN AN AREA THAT CONSTITUTES MORE THAN FIFTY (50%) OF THE TOTAL CRITICAL ROOT ZONE AND ONE HALF THE RADIAL DISTANCE OF THE CRITICAL ROOT ZONE FOR EACH TREE BEING PRESERVED INCLUDING SIGNIFICANT TREES, HERITAGE TREES, AND ANY OTHER TREES FOR WHICH PRESERVATION IS TO BE CREDITED. THE REMAINING CRITICAL ROOT ZONE SHALL CONSIST OF AT LEAST ONE HUNDRED (100) SQUARE FEET.
   B. THIS DEFINED AREA SHALL BE FLAGGED AND ENCIRCLED WITH PROTECTIVE FENCING DURING CONSTRUCTION. THE PLANNING DIRECTOR MAY APPROVE CONSTRUCTION CLOSER TO THE TRUNK THAN ONE HALF (½) THE RADIAL DISTANCE, DEPENDING ON THE SIZE, SPACING, OR SPECIES OF THE TREE, THE TYPE OF DISTURBANCE PROPOSED, AND UNIQUENESS OF THE SITUATION.
   C. CUT OR FILL THAT IS GREATER THAN FOUR (4) INCHES IN DEPTH AND THE SEVERING OF MAJOR ROOTS SHALL BE CONSIDERED DISTURBANCE FOR THE PURPOSES OF THIS ORDINANCE.
   D. WITHIN THE PROTECTED CRITICAL ROOT ZONE, ONLY FLATWORK, DECKING, OR SIMILAR CONSTRUCTION, MAY BE APPROVED AND SHALL NOT AFFECT THE BRANCHING OF THE TREE.
   E. IF PROPOSED OR ACTUAL PROTECTION OF THE CRITICAL ROOT ZONE OF A TREE DOES NOT MEET THE REQUIREMENTS OF THIS SECTION, THEN THE TREE SHALL BE CONSIDERED REMOVED AND SHALL REQUIRE MITIGATION IN ACCORDANCE WITH THIS ORDINANCE.

WAYNE S. WATTS 08/21/15

City Of Leander, Texas
309-2
TREE PROTECTION

REV. NO.	BY	DATE	REVISION DESCRIPTION

STATE OF TEXAS
DALE P. MURPHY
90614
LICENSED PROFESSIONAL ENGINEER
11/04/2022

K FRIESE & ASSOCIATES, INC.
1120 S. CAPITAL OF TEXAS HWY, II-100, AUSTIN, TX 78746

CITY OF LEANDER
SAN GABRIEL EAST ELEVATED STORAGE TANK
EROSION AND SEDIMENTATION CONTROL DETAILS

K FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
FIRM #6526

CITY OF LEANDER

SCALE	
DATE	10/28/2022
SHEET NUMBER	C5 OF C21 5 OF 34

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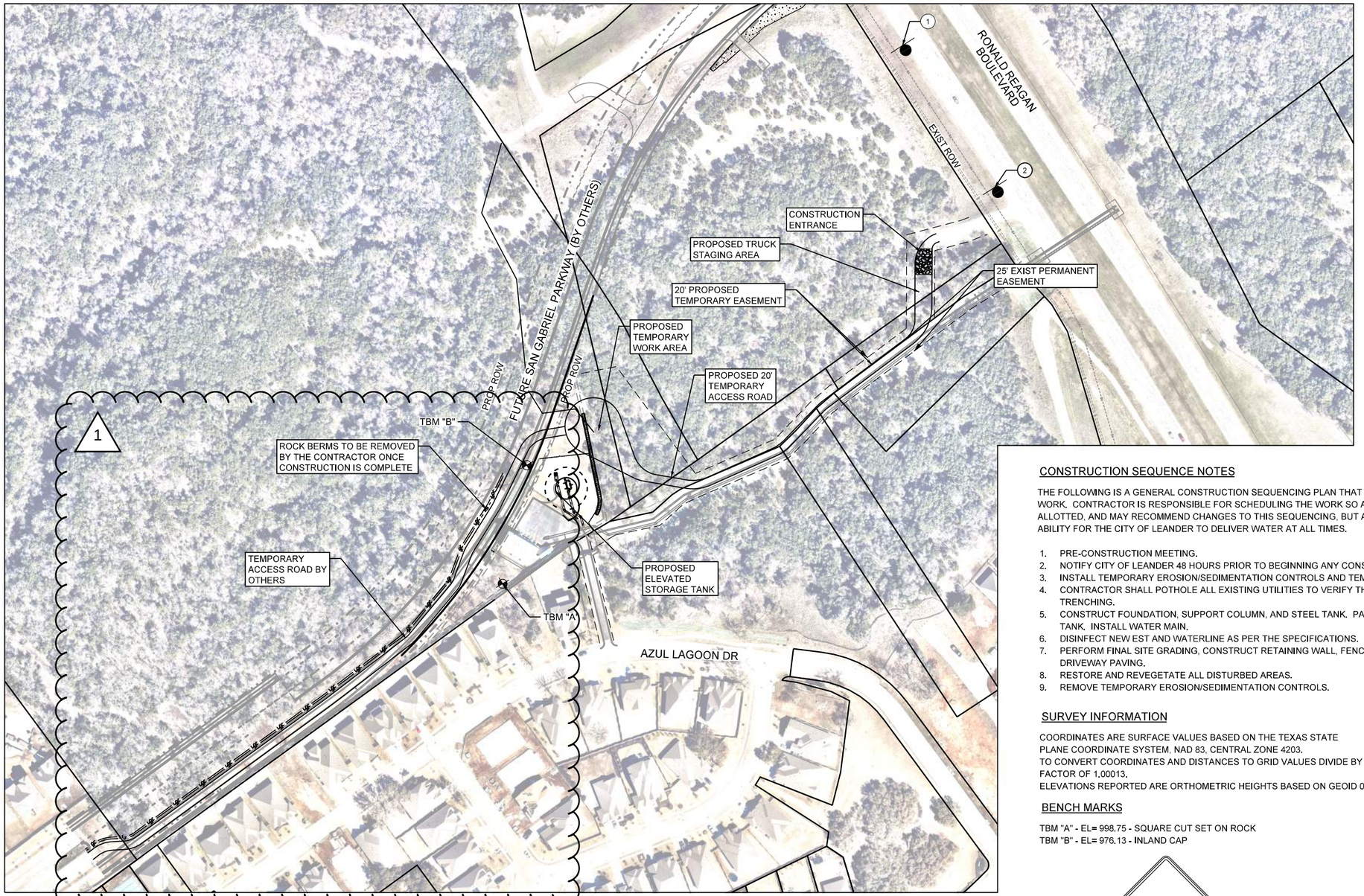

LEGEND

- PROPOSED RETAINING WALL
- PROPOSED ACCESS PATH
- PROPERTY LINE/RIGHT-OF-WAY
- BENCHMARK

N

0 100' 200'

CONSTRUCTION SEQUENCE NOTES

THE FOLLOWING IS A GENERAL CONSTRUCTION SEQUENCING PLAN THAT IS NOT INCLUSIVE OF ALL ITEMS OF WORK. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING THE WORK SO AS TO BE COMPLETED WITHIN THE TIME ALLOTTED, AND MAY RECOMMEND CHANGES TO THIS SEQUENCING, BUT ANY CHANGES MUST NOT AFFECT THE ABILITY FOR THE CITY OF LEANDER TO DELIVER WATER AT ALL TIMES.

1. PRE-CONSTRUCTION MEETING.
2. NOTIFY CITY OF LEANDER 48 HOURS PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY.
3. INSTALL TEMPORARY EROSION/SEDIMENTATION CONTROLS AND TEMPORARY FENCE.
4. CONTRACTOR SHALL POTHOLE ALL EXISTING UTILITIES TO VERIFY THEIR LOCATIONS PRIOR TO ANY TRENCHING.
5. CONSTRUCT FOUNDATION, SUPPORT COLUMN, AND STEEL TANK. PAINT INTERIOR AND EXTERIOR OF TANK. INSTALL WATER MAIN.
6. DISINFECT NEW EST AND WATERLINE AS PER THE SPECIFICATIONS.
7. PERFORM FINAL SITE GRADING, CONSTRUCT RETAINING WALL, FENCE, OTHER SITE IMPROVEMENTS, AND DRIVEWAY PAVING.
8. RESTORE AND REVEGETATE ALL DISTURBED AREAS.
9. REMOVE TEMPORARY EROSION/SEDIMENTATION CONTROLS.

SURVEY INFORMATION

COORDINATES ARE SURFACE VALUES BASED ON THE TEXAS STATE PLANE COORDINATE SYSTEM, NAD 83, CENTRAL ZONE 4203.
TO CONVERT COORDINATES AND DISTANCES TO GRID VALUES DIVIDE BY A COMBINED SURFACE ADJUSTMENT FACTOR OF 1.00013.
ELEVATIONS REPORTED ARE ORTHOMETRIC HEIGHTS BASED ON GEOID 09.

BENCH MARKS

TBM "A" - EL= 998.75 - SQUARE CUT SET ON ROCK
TBM "B" - EL= 976.13 - INLAND CAP

SURVEY NOTES

1. ALL UNDERGROUND UTILITY LOCATIONS AS SHOWN ON THIS SURVEY PLAT ARE BASED ON FIELD INFORMATION AND ON THE MOST RECENT AND CURRENT INFORMATION PROVIDED BY THE UTILITY OWNER. THERE MAY BE OTHER PIPE LINES AND INSTALLATIONS IN THE AREA THAT ARE NOT SHOWN ON THIS PLAT. PRIOR TO ANY CONSTRUCTION OR EXCAVATION THE "ONE-CALL" SYSTEM SHOULD BE CONTACTED.
2. ALL COORDINATES AND BEARINGS REFER TO THE TEXAS STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, NORTH AMERICAN DATUM OF 1983, GRID DISTANCES.
3. ELEVATIONS AND CONTOURS ARE BASED ON THE LEICA G.P.S. VIRTUAL REFERENCE STATION NETWORK, NORTH AMERICAN VERTICAL DATUM OF 1988.

ACCESS NOTES

1. ELEVATED STORAGE TANK SITE ACCESS CAN BE THROUGH THE SAN GABRIEL PARKWAY RIGHT-OF-WAY (ACCESS ROAD BY OTHERS), AND/OR FROM RONALD REAGAN BOULEVARD (ACCESS ROAD BY CONTRACTOR).
2. ACCESS ROAD BY CONTRACTOR SHALL BE NO LESS THAN 20' WIDE, MAXIMUM CROSS SLOPE OF 3%, AND MAXIMUM LONGITUDINAL SLOPE OF 25%. ACCESS ROAD SHOULD BE ENTIRELY WITHIN THE PROPOSED TEMPORARY EASEMENT.
3. FOLLOWING THE COMPLETION OF CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR REGRADING ACCESS ROAD FROM RONALD REAGAN TO PRE-CONSTRUCTION CONDITION.
4. ACCESS THROUGH AZUL LAGOON DRIVE IS PROHIBITED TO ALL CONSTRUCTION TRAFFIC, ASIDE FROM LIMITED PERSONAL VEHICLES AND LIMITED CRANE DELIVERIES.

1

1 — CONSTRUCTION ENTRANCE AHEAD

2 — CONSTRUCTION ENTRANCE

REV. NO.	BY	DATE	REVISION DESCRIPTION
1	DM	11/04/22	REVISE SITE ACCESS

STATE OF TEXAS
DALE P. MURPHY
90614
LICENSED PROFESSIONAL ENGINEER
11/04/2022

K FRIESE & ASSOCIATES, INC.
1120 S. CAPITAL OF TEXAS HWY, II-100, AUSTIN, TX 78746

CITY OF LEANDER
SAN GABRIEL EAST ELEVATED STORAGE TANK

PROJECT LAYOUT & EXISTING CONDITIONS

K FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
FIRM #6535

CITY OF LEANDER

SCALE	1" = 200'
DATE	10/31/2022
SHEET NUMBER	C6 OF C21 6 OF 34

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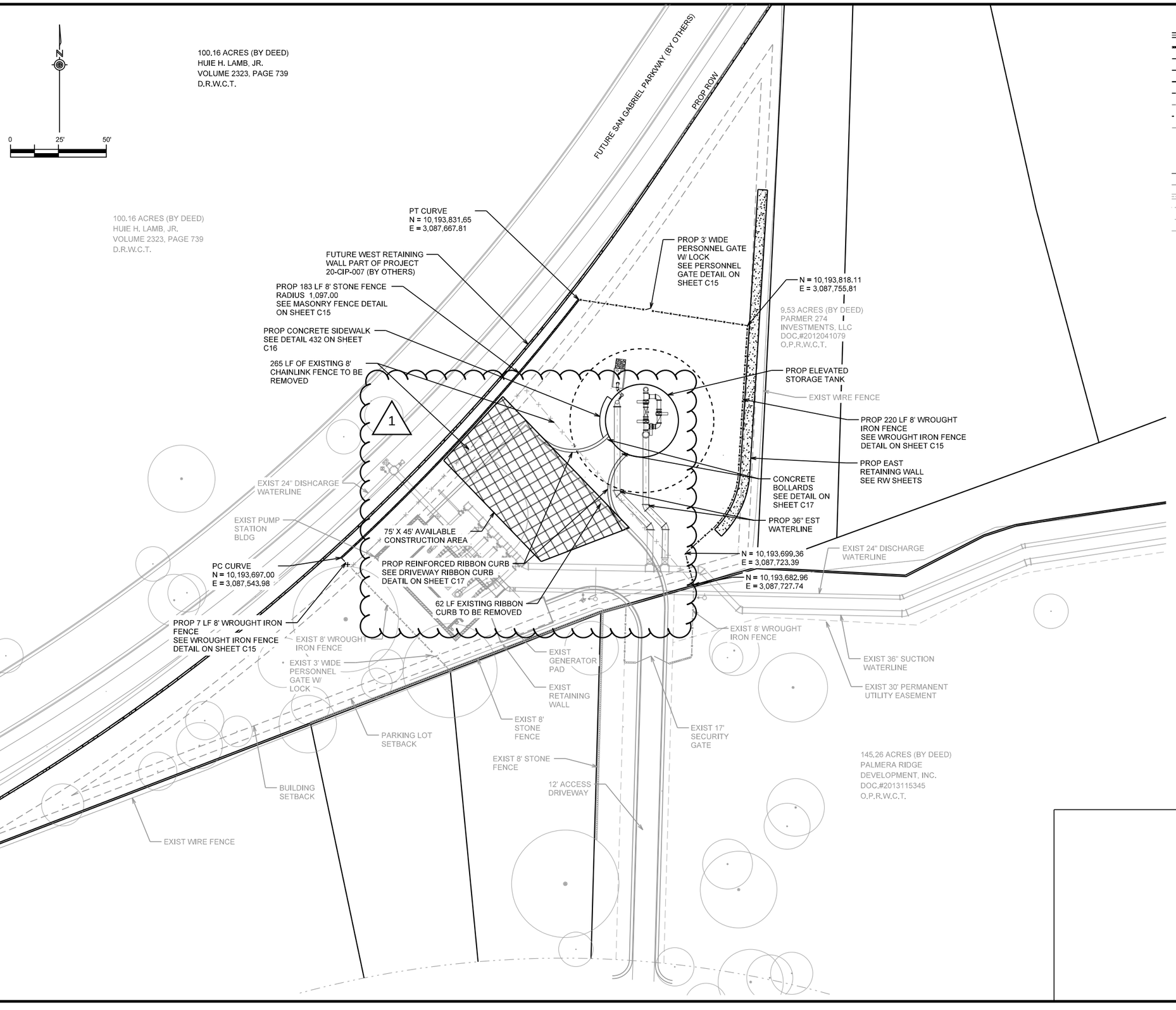


LEGEND

- PROPOSED WATERLINE
- PROPOSED STONE FENCE
- PROPOSED WROUGHT IRON FENCE
- LIMITS OF CONSTRUCTION
- PROPOSED EASEMENT
- PROPOSED CONTOURS
- EXIST CONTOURS
- EXIST PERMANENT EASEMENT
- EXIST FENCE TO BE REMOVED
- EXIST FIRE HYDRANT
- EXIST WATER VALVE
- EXIST AIR RELEASE VALVE
- EXIST R.O.W.
- EXIST EDGE OF PAVEMENT
- EXIST WATERLINE
- UGC — EXIST UNDERGROUND UTILITY
- OHE — EXIST OVERHEAD ELECTRIC
- EXIST FENCE
- EXIST WATER VALVE
- EXIST WATER METER
- EXIST MAILBOX
- EXIST POWER POLE
- EXIST SIGN
- TEL — EXIST TELEPHONE BOX
- EXIST UTILITY PEDESTAL
- XXX — EXIST TREE TO REMAIN
- XXX — EXIST TREE TO BE REMOVED

NOTES:

1. REMOVE EXIST BARBED WIRE FENCE WHERE CONFLICTING WITH NEW FENCE, MAINTAIN BARBED WIRE FENCE IN ALL OTHER LOCATIONS.

REV. NO.	BY	DATE	REVISION DESCRIPTION
1	DM	11/04/22	ADD CONSTRUCTION AREA

STATE OF TEXAS
DALE P. MURPHY
90614
LICENSED
PROFESSIONAL ENGINEER
11/04/2022

K FRIESE & ASSOCIATES, INC.
1120 S. CAPITAL OF TEXAS HWY, II-100, AUSTIN, TX 78746

CITY OF LEANDER
SAN GABRIEL EAST ELEVATED STORAGE TANK

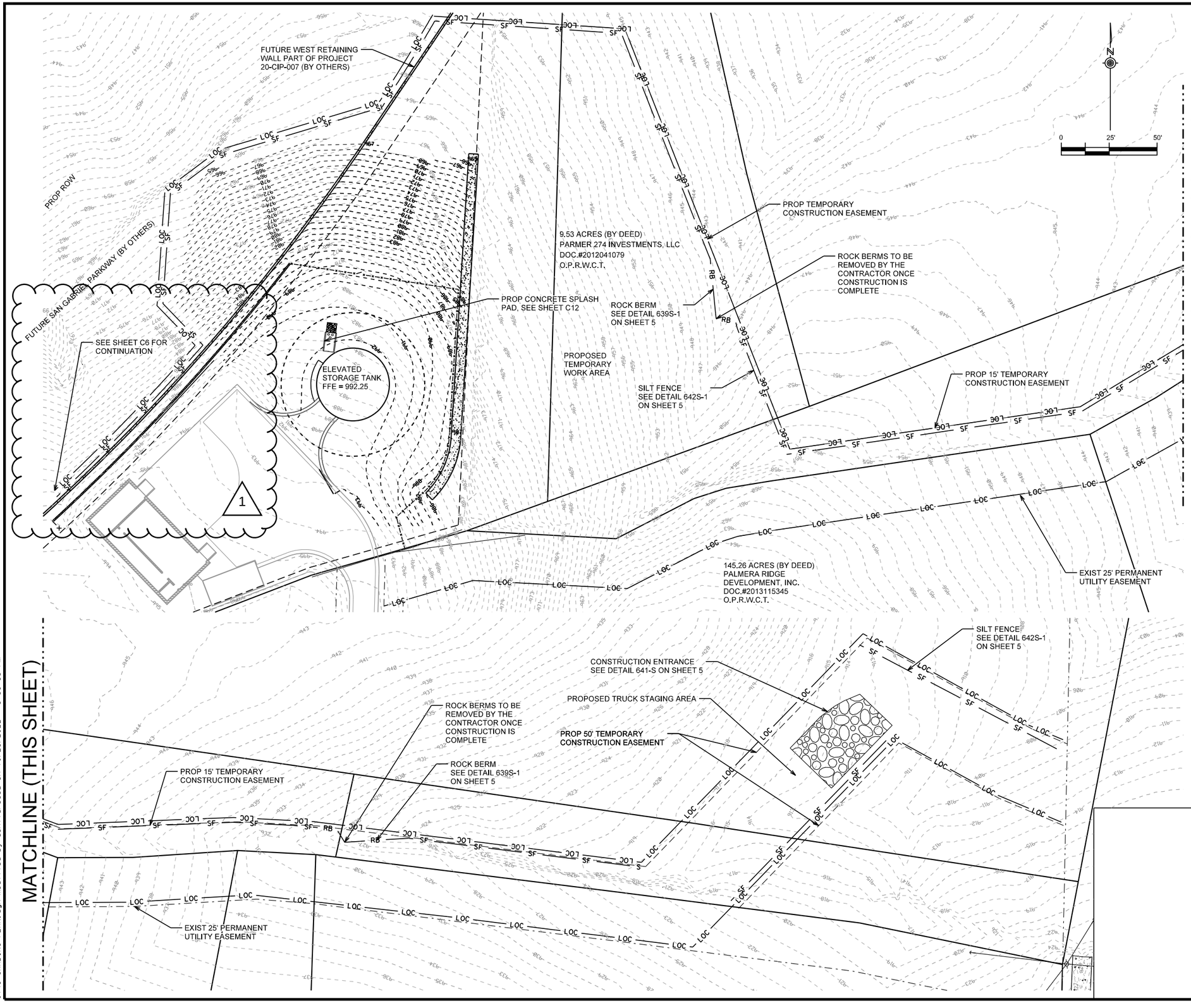
SITE PLAN & DEMOLITION PLAN

K FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
FIRM #6535

CITY OF LEANDER

SCALE	1" = 50'
DATE	10/28/2022
SHEET NUMBER	C7 OF C21 7 OF 34

0749*SITE*PLAN*B.dgn modified by dchilorescu on 10/28/2022 - 3:39:52 PM



LEGEND

- —LOC— LIMITS OF CONSTRUCTION
- PROPOSED WATERLINE
- — SF — SILT FENCE
- — RB — ROCK BERM
- — TP — TREE PROTECTION
- — - - — EXIST R.O.W.
- EXIST EDGE OF PAVEMENT
- EXIST WATERLINE
- XXX EXIST TREE

NOTES:

1. SOIL RETENTION BLANKET TO BE USED ON ALL NATURAL GROUND AREAS DISTURBED DURING CONSTRUCTION.
2. THE CITY OF LEANDER ENVIRONEMNTAL INSPECTOR HAS THE AUTHORITY TO ADD OR MODIFY EROSION/SEDIMENTATION CONTROLS ON SITE THROUGHOUT THE DURATION OF THE PROJECT.
3. FOR TREE PROTECTION SEE DETAIL 303-2 ON SHEET 5.
4. SPOIL STORAGE SHALL BE SURROUNDED BY SILT FENCE.

REV. NO.	BY	DATE	REVISION DESCRIPTION
1	DM	11/04/22	ADD ACCESS ROAD ESC

STATE OF TEXAS
DALE P. MURPHY
90614
LICENSED
PROFESSIONAL ENGINEER
11/04/2022

K FRIESE & ASSOCIATES, INC.
1120 S. CAPITAL OF TEXAS HWY, II-100, AUSTIN, TX 78746

CITY OF LEANDER

SAN GABRIEL EAST ELEVATED STORAGE TANK

GRADING & EROSION CONTROL PLAN

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING FIRM #6526

CITY OF LEANDER

SCALE	1" = 50'
DATE	10/28/2022
SHEET NUMBER	C8 OF C21 8 OF 34

0749-GRADING-PLAN.dgn modified by dchilorescu on 10/28/2022 - 3:39:53 PM

TREE LIST			
TAG NUMBER	TYPE	DIAMETER (S) (INCHES)	TO BE REMOVED
230001	PO	17	X
230002	PO	15	X
230003	PO	21	X
230007	PO	15	X
230009	PO	28	X
230010	PO	9	X
230011	PO	8	X
230012	PO	19	X

TREE CALIPER INCHES

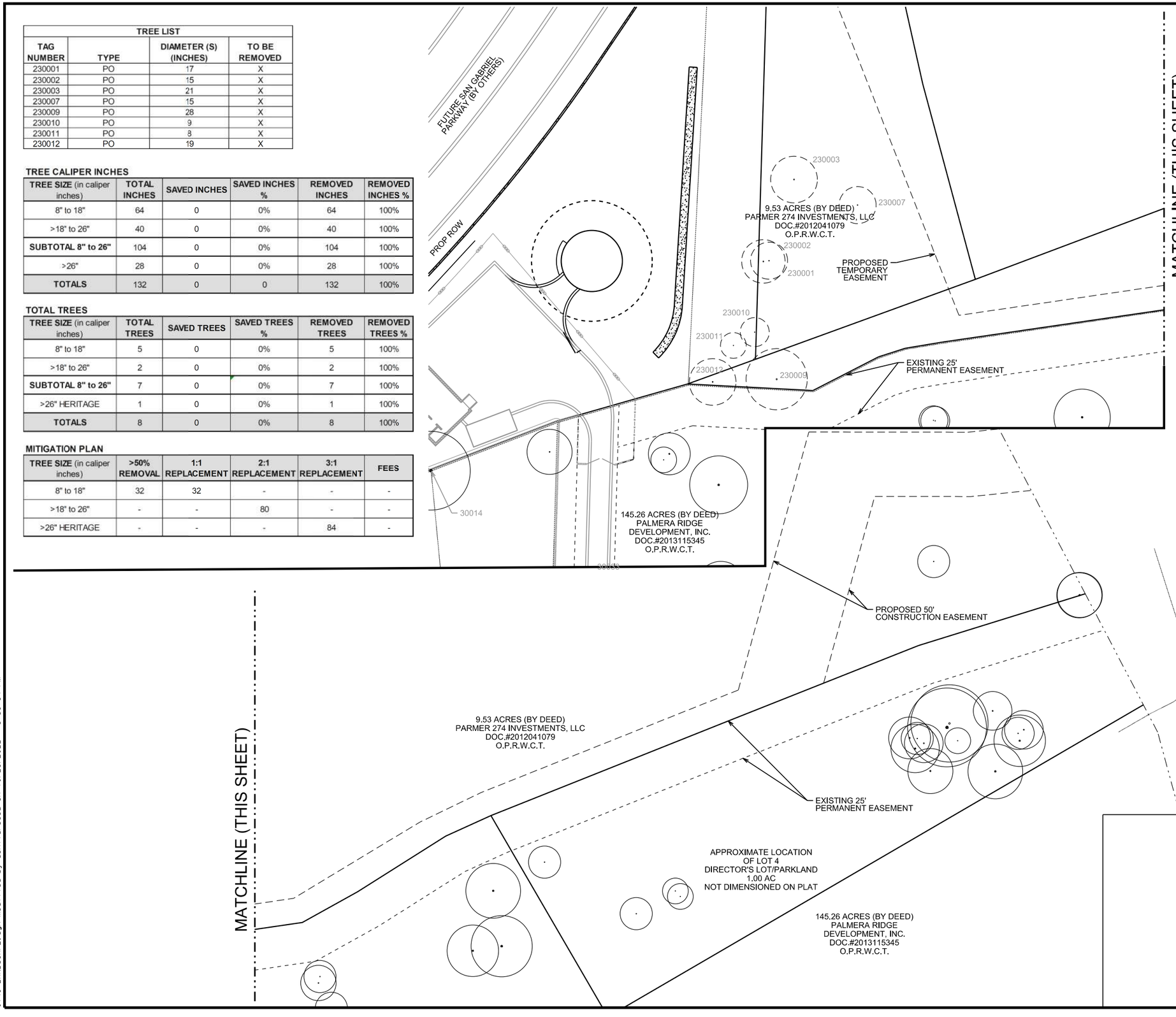
TREE SIZE (in caliper inches)	TOTAL INCHES	SAVED INCHES	SAVED INCHES %	REMOVED INCHES	REMOVED INCHES %
8" to 18"	64	0	0%	64	100%
>18" to 26"	40	0	0%	40	100%
SUBTOTAL 8" to 26"	104	0	0%	104	100%
>26"	28	0	0%	28	100%
TOTALS	132	0	0	132	100%

TOTAL TREES

TREE SIZE (in caliper inches)	TOTAL TREES	SAVED TREES	SAVED TREES %	REMOVED TREES	REMOVED TREES %
8" to 18"	5	0	0%	5	100%
>18" to 26"	2	0	0%	2	100%
SUBTOTAL 8" to 26"	7	0	0%	7	100%
>26" HERITAGE	1	0	0%	1	100%
TOTALS	8	0	0%	8	100%

MITIGATION PLAN

TREE SIZE (in caliper inches)	>50% REMOVAL	1:1 REPLACEMENT	2:1 REPLACEMENT	3:1 REPLACEMENT	FEES
8" to 18"	32	32	-	-	-
>18" to 26"	-	-	80	-	-
>26" HERITAGE	-	-	-	84	-



LEGEND

- PROPOSED WATERLINE
- PROPOSED STONE FENCE
- PROPOSED WROUGHT IRON FENCE
- LIMITS OF CONSTRUCTION
- PROPOSED EASEMENT
- PROPOSED CONTOURS
- EXIST CONTOURS
- EXIST PERMANENT EASEMENT
- EXIST FENCE TO BE REMOVED
- EXIST FIRE HYDRANT
- EXIST WATER VALVE
- EXIST AIR RELEASE VALVE
- EXIST R.O.W.
- EXIST EDGE OF PAVEMENT
- EXIST WATERLINE
- UGC EXIST UNDERGROUND UTILITY
- OHE EXIST OVERHEAD ELECTRIC
- EXIST FENCE
- EXIST WATER VALVE
- EXIST WATER METER
- EXIST MAILBOX
- EXIST POWER POLE
- EXIST SIGN
- TEL EXIST TELEPHONE BOX
- EXIST UTILITY PEDESTAL
- XXX EXIST TREE TO REMAIN
- XXX EXIST TREE TO BE REMOVED

NOTES:

1. TREE CALIPER IS THE TRUNK DIAMETER OF A TREE AT FOUR (4) FEET ABOVE NATURAL GRADE PER THE COMPOSITE ZONING ORDINANCE.
2. ALL DISTURBED AREAS MUST BE RE-VEGETATED.
3. HERITAGE TREES WILL REQUIRE CITY COUNCIL APPROVAL PRIOR TO REMOVAL.
4. FOR TREE PROTECTION SEE DETAIL 303-2 ON SHEET 5.

REV. NO.	BY	DATE	REVISION DESCRIPTION

STATE OF TEXAS
DALE P. MURPHY
90614
LICENSED
PROFESSIONAL ENGINEER
11/04/2022

K FRIESE & ASSOCIATES, INC.
1120 S. CAPITAL OF TEXAS HWY, II-100, AUSTIN, TX 78746

CITY OF LEANDER
SAN GABRIEL EAST ELEVATED STORAGE TANK

TREE SURVEY AND MITIGATION PLAN

K FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
FIRM #6526

CITY OF LEANDER

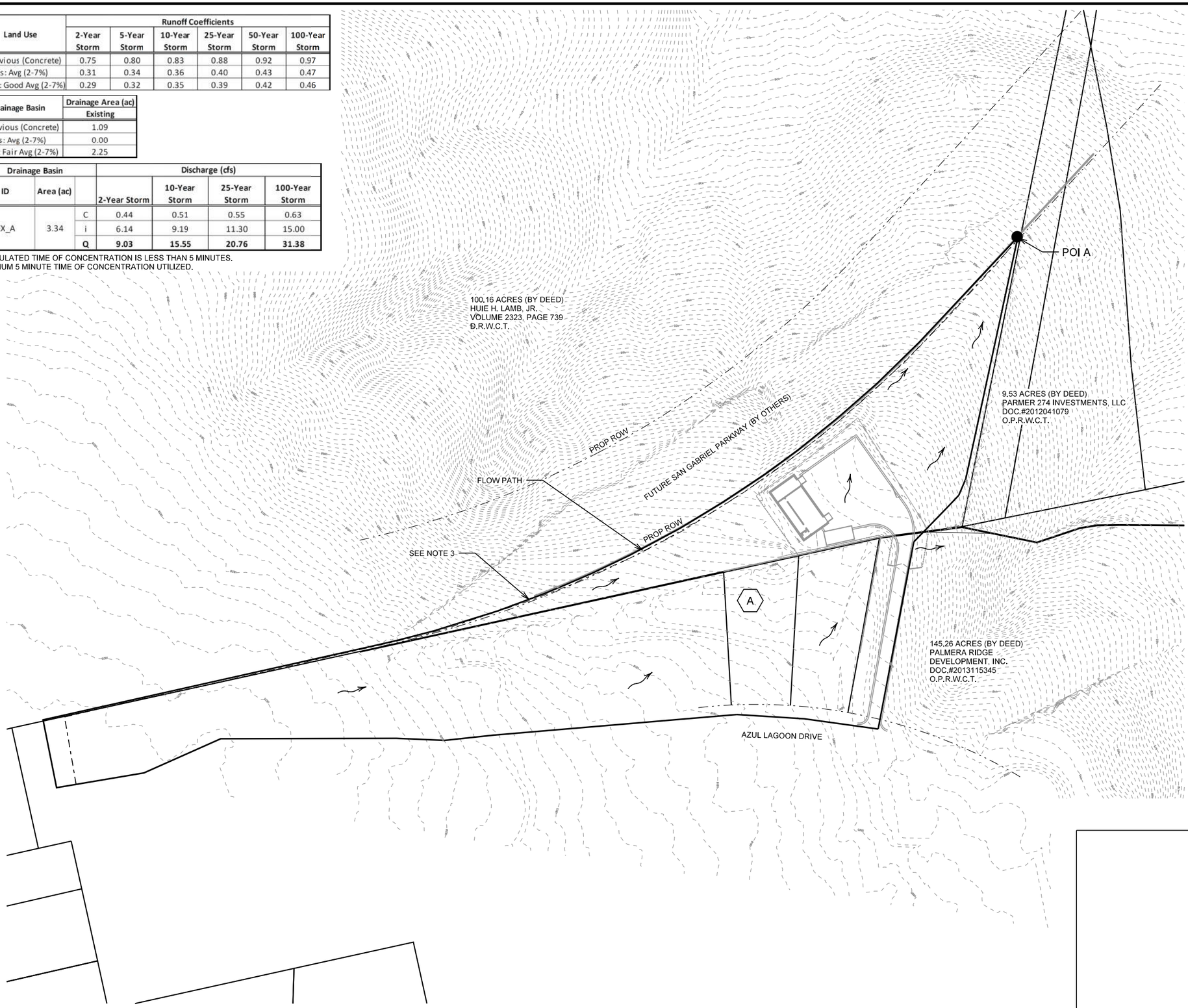
SCALE	1" = 60'
DATE	10/28/2022
SHEET NUMBER	C9 OF C21 9 OF 34

Land Use	Runoff Coefficients					
	2-Year Storm	5-Year Storm	10-Year Storm	25-Year Storm	50-Year Storm	100-Year Storm
Impervious (Concrete)	0.75	0.80	0.83	0.88	0.92	0.97
Woods: Avg (2-7%)	0.31	0.34	0.36	0.40	0.43	0.47
Grass: Good Avg (2-7%)	0.29	0.32	0.35	0.39	0.42	0.46

Drainage Basin	Drainage Area (ac)
	Existing
Impervious (Concrete)	1.09
Woods: Avg (2-7%)	0.00
Grass: Fair Avg (2-7%)	2.25

Drainage Basin			Discharge (cfs)			
ID	Area (ac)		2-Year Storm	10-Year Storm	25-Year Storm	100-Year Storm
EX_A	3.34	C	0.44	0.51	0.55	0.63
		i	6.14	9.19	11.30	15.00
		Q	**9.03**	**15.55**	**20.76**	**31.38**

CALCULATED TIME OF CONCENTRATION IS LESS THAN 5 MINUTES.
MINIMUM 5 MINUTE TIME OF CONCENTRATION UTILIZED.



LEGEND

- LIMITS OF CONSTRUCTION
- PROP STONE FENCE
- PROP WROUGHT IRON FENCE
- PROP R.O.W.
- PROP EASEMENT
- PROP CONTOUR
- EXIST CONTOUR
- EXIST EDGE OF PAVEMENT
- DRAINAGE BOUNDARY
- FLOW PATH

NOTES

1. THE TIME OF CONCENTRATION WAS DETERMINED USING CITY OF AUSTIN GUIDANCE AND PROCEDURES AS DOCUMENTED IN THE CITY OF AUSTIN DRAINAGE CRITERIA MANUAL.
2. INTENSITIES WERE DETERMINED USING THE CITY OF LEANDER IDF CURVE COEFFICIENTS FROM CITY OF LEANDER TECHNICAL MEMORANDUM 1 DATED JUNE 17, 2020.
3. A PROPOSED CURB AND RETAINING WALL WITH CONCRETE FLUME WILL BE CONSTRUCTED ALONG THE NORTHERN EDGE OF THE DRAINAGE BOUNDARY SHOWN. THE CONCRETE FLUME WILL DIVERT RUNOFF TO POI A. FLOW RATE ANALYSIS HAS BEEN PERFORMED TO DETERMINE IMPACTS OF ELEVATED STORAGE TANK CONSTRUCTION; SEE SAN GABRIEL PARKWAY - PHASE 2 PLANS FOR ANALYSIS OF SAN GABRIEL PARKWAY AND ASSOCIATED DRAINAGE FEATURES, PROJECT 20-CIP-007.

REV. NO.	BY	DATE	REVISION DESCRIPTION

STATE OF TEXAS
DALE P. MURPHY
90614
LICENSED
PROFESSIONAL ENGINEER
11/04/2022

K FRIESE & ASSOCIATES, INC.
1120 S. CAPITAL OF TEXAS HWY, II-100, AUSTIN, TX 78746

CITY OF LEANDER
SAN GABRIEL EAST ELEVATED STORAGE TANK

EXISTING DRAINAGE AREA MAP

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
FIRM #6535

CITY OF LEANDER

SCALE	1" = 100'
DATE	10/28/2022
SHEET NUMBER	C10 OF C21 10 OF 34

Land Use	Runoff Coefficients					
	2-Year Storm	5-Year Storm	10-Year Storm	25-Year Storm	50-Year Storm	100-Year Storm
Impervious (Concrete)	0.75	0.80	0.83	0.88	0.92	0.97
Woods: Avg (2-7%)	0.31	0.34	0.36	0.40	0.43	0.47
Grass: Good Avg (2-7%)	0.29	0.32	0.35	0.39	0.42	0.46

Drainage Basin	Drainage Area (ac)
	Proposed
Impervious (Concrete)	1.15
Woods: Avg (2-7%)	0.00
Grass: Fair Avg (2-7%)	2.19

Drainage Basin			Discharge (cfs)			
ID	Area (ac)		2-Year Storm	10-Year Storm	25-Year Storm	100-Year Storm
PR_A	3.34	C	0.45	0.52	0.56	0.64
		i	6.14	9.19	11.30	15.00
		Q	**9.20**	**15.82**	**21.09**	**31.84**

CALCULATED TIME OF CONCENTRATION IS LESS THAN 5 MINUTES.
MINIMUM 5 MINUTE TIME OF CONCENTRATION UTILIZED.

LEGEND

- LIMITS OF CONSTRUCTION
- PROP STONE FENCE
- PROP WROUGHT IRON FENCE
- PROP R.O.W.
- PROP EASEMENT
- PROP CONTOUR
- EXIST CONTOUR
- EXIST EDGE OF PAVEMENT
- DRAINAGE BOUNDARY
- FLOW PATH

NOTES

1. THE TIME OF CONCENTRATION WAS DETERMINED USING CITY OF AUSTIN GUIDANCE AND PROCEDURES AS DOCUMENTED IN THE CITY OF AUSTIN DRAINAGE CRITERIA MANUAL.
2. INTENSITIES WERE DETERMINED USING THE CITY OF LEANDER IDF CURVE COEFFICIENTS FROM CITY OF LEANDER TECHNICAL MEMORANDUM 1 DATED JUNE 17, 2020.
3. A PROPOSED CURB AND RETAINING WALL WITH CONCRETE FLUME WILL BE CONSTRUCTED ALONG THE NORTHERN EDGE OF THE DRAINAGE BOUNDARY SHOWN. THE CONCRETE FLUME WILL DIVERT RUNOFF TO POI A. THIS PROJECT'S CONSTRUCTION WILL NOT IMPACT THE THE LONGEST FLOW PATH WITHIN THE DRAINAGE BASIN; THEREFORE A MINIMUM TIME OF CONCENTRATION OF 5 MINUTES IS UTILIZED FOR EXISTING AND PROPOSED CONDITIONS. FLOW RATE ANALYSIS HAS BEEN PERFORMED TO DETERMINE IMPACTS OF ELEVATED STORAGE TANK CONSTRUCTION; SEE SAN GABRIEL PARKWAY - PHASE 2 PLANS FOR ANALYSIS OF SAN GABRIEL PARKWAY AND ASSOCIATED DRAINAGE FEATURES, PROJECT 20-CIP-007.

REV. NO.	BY	DATE	REVISION DESCRIPTION

STATE OF TEXAS
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11/04/2022

K FRIESE & ASSOCIATES, INC.
1120 S. CAPITAL OF TEXAS HWY, II-100, AUSTIN, TX 78746

CITY OF LEANDER

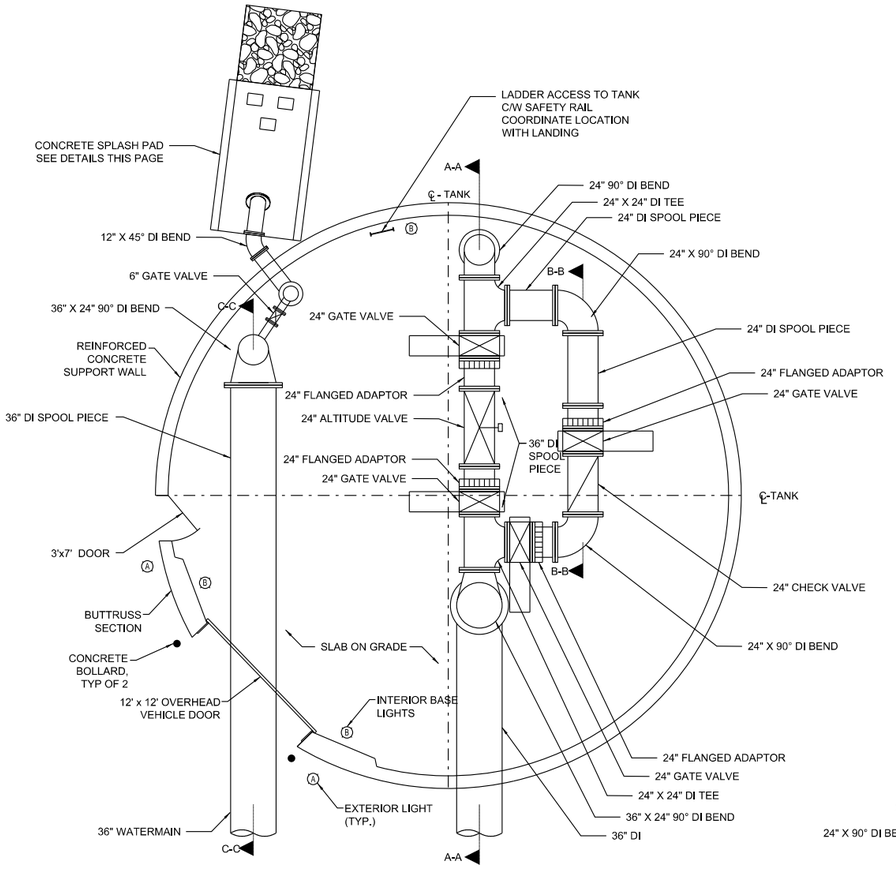
SAN GABRIEL EAST ELEVATED STORAGE TANK

PROPOSED DRAINAGE AREA MAP

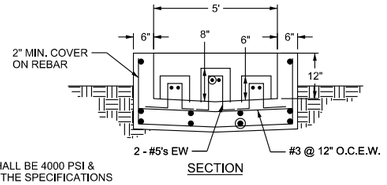
K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
FIRM #6535

CITY OF LEANDER

SCALE	1" = 100'
DATE	10/28/2022
SHEET NUMBER	C11 OF C21 11 OF 34



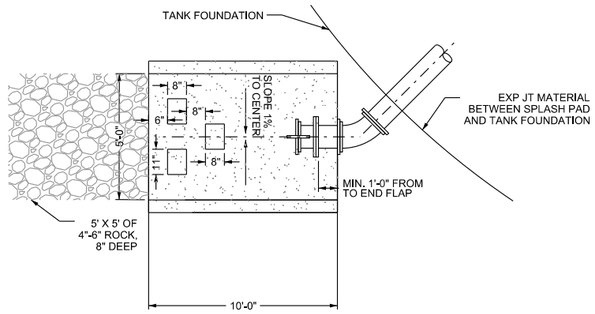
TANK BASE PLAN
N.T.S.



NOTE:

CONCRETE SHALL BE 4000 PSI & CONFORM TO THE SPECIFICATIONS

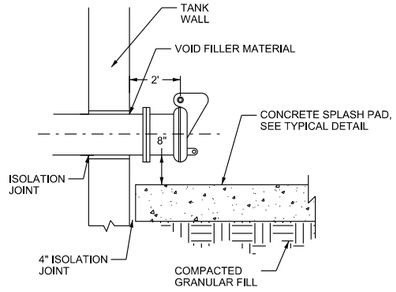
SECTION



PLAN

CONCRETE SPLASH DETAIL

N.T.S.



NOTE:

OVERFLOW WEIR SHALL BE SIZED BY TANK MANUFACTURER TO PASS 12,000 GPM. SEE MINIMUM DIMENSIONS ON OVERFLOW AND DRAIN DETAIL

OVERFLOW & DRAIN DETAIL

NOTES:

GENERAL:

1. MAN DOOR - 3' WIDE X 7' HIGH, HOLLOW METAL DOOR WITH 16 GA. FRAME AND HEAVY DUTY CLOSURE.
2. VEHICLE DOOR - 12' WIDE X 12' HIGH ROLLING STEEL WITH 22 GA. GALVANIZED SLATS AND MANUAL CHAIN OPERATOR.
3. PROVIDE MONOLITHIC REINFORCED CONCRETE INTERNAL BUTTRESS SECTION ON EACH SIDE OF VEHICLE DOOR. BUTTRESS TO BE MINIMUM 3'-6" WIDE AND 6" THICKER THAN NOMINAL WALL DIMENSION.

SLAB ON GRADE:

1. PROVIDE A 6" THICK 4000 PSI CONCRETE FLOOR ON COMPACTED GRANULAR FILL REINFORCED WITH #4 BARS AT 12" CENTERS EACH WAY.
2. PROVIDE 1/2" ISOLATION JOINT BETWEEN FLOOR AND WALL AND AT ALL FLOOR PENETRATIONS. CAP WITH SELF LEVELING SEALANT.
3. SAWCUT CONTROL JOINTS 1 1/2" DEEP AT 20 FEET MAXIMUM CENTERS.
4. SLOPE SLAB MINIMUM 0.5% TO VEHICLE DOOR FOR DRAINAGE.

MECHANICAL:

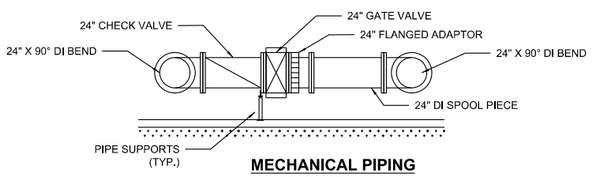
1. PROVIDE EXPANSION JOINT ON INLET/OUTLET RISER TO ACCOMMODATE MAXIMUM POTENTIAL DIFFERENTIAL MOVEMENT.
2. CONNECT RISER AND OVERFLOW WITH A VALVED LATERAL FOR TANK DRAINING.
3. PROVIDE THRUST RESTRAINT AND SUPPORT AS REQUIRED.
4. INSTALL 3 PC. 3/4" TAPPINGS COMPLETE WITH BRONZE BALL VALVE AND PLUG ON INLET/OUTLET PIPE.

ELECTRICAL:

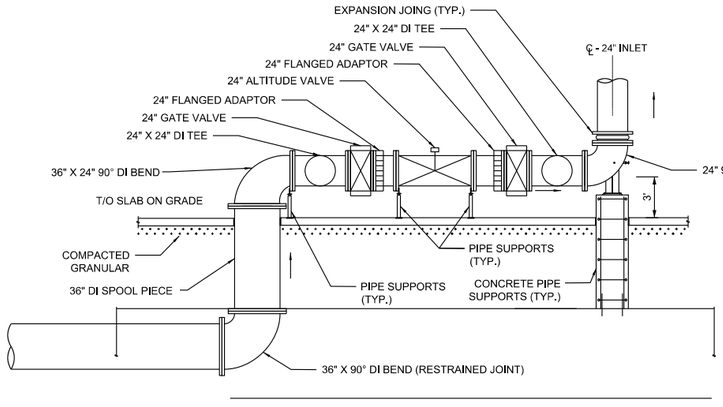
1. MOUNT EXTERIOR DOOR LIGHTS 10' ABOVE GRADE.
2. MOUNT INTERIOR PEDESTAL BASE LIGHTS 10' ABOVE SLAB ON GRADE.

FIRE:

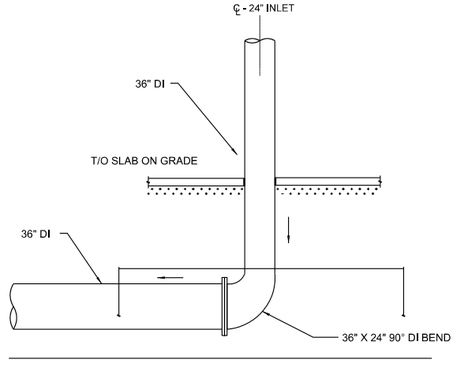
1. FIRE EXTINGUISHER WITH ASSOCIATED SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH THE INTERNATIONAL FIRE CODE.



MECHANICAL PIPING
SECTION B-B



MECHANICAL PIPING
SECTION A-A



MECHANICAL PIPING
SECTION C-C

REV. NO.	BY	DATE	REVISION DESCRIPTION

STATE OF TEXAS
DALE P. MURPHY
90614
LICENSED
PROFESSIONAL ENGINEER
11/04/2022

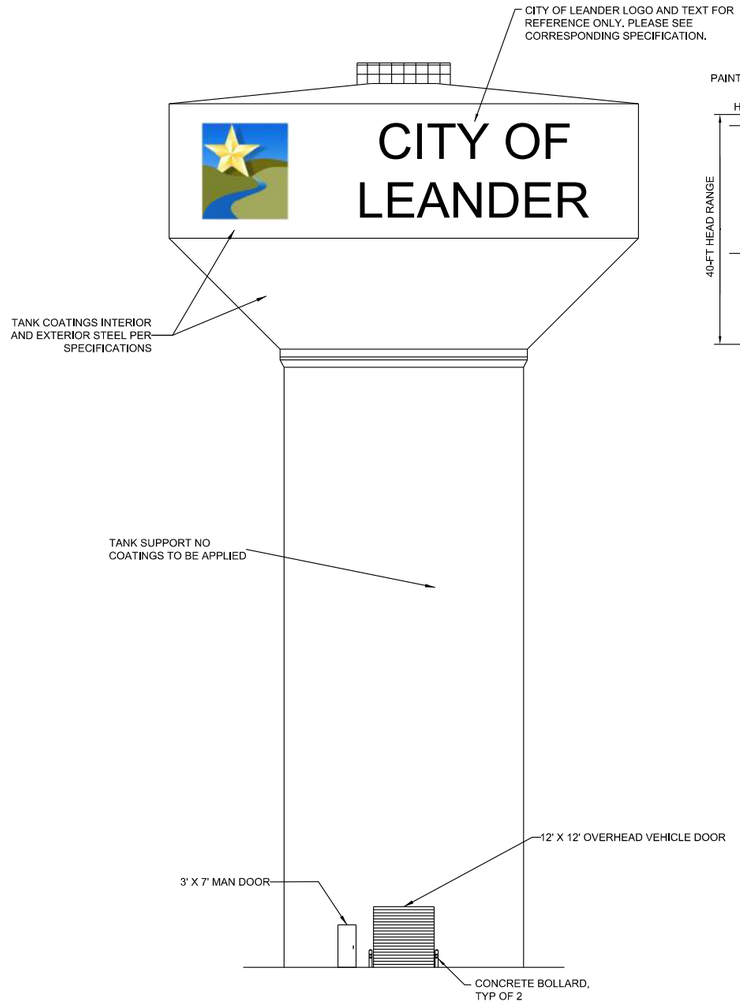
K FRIESE & ASSOCIATES, INC.
1120 S. CAPITAL OF TEXAS HWY, II-100, AUSTIN, TX 78746

CITY OF LEANDER
SAN GABRIEL EAST ELEVATED STORAGE TANK
TANK PLAN VIEW

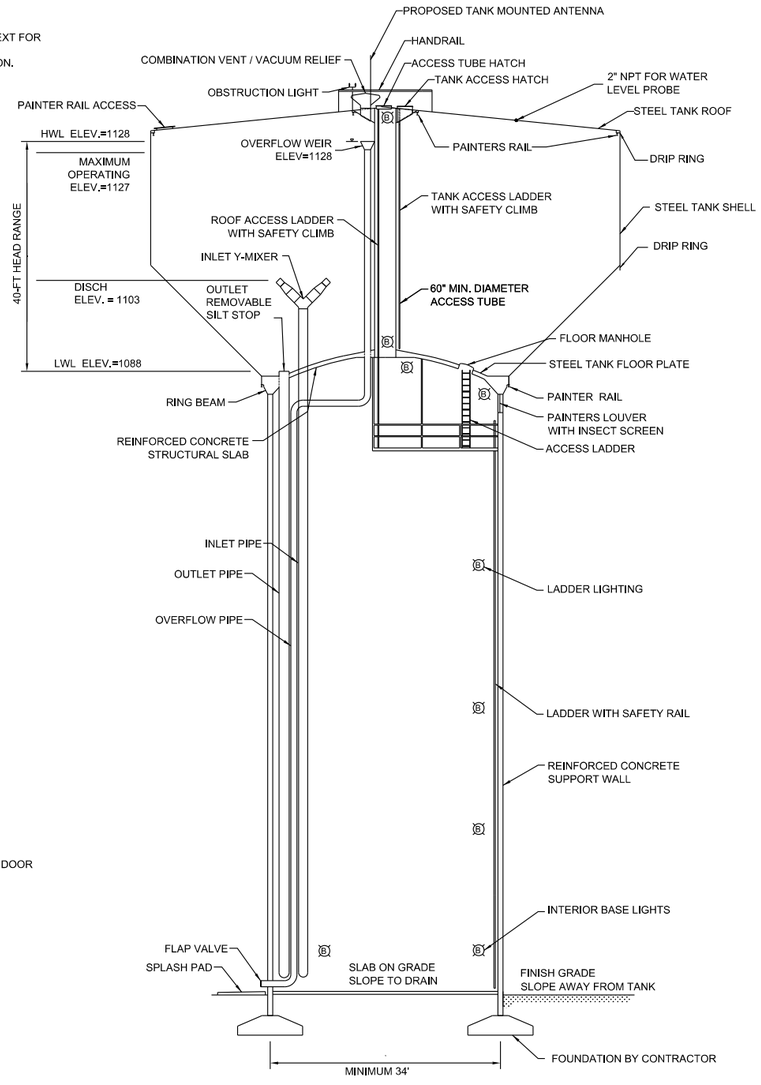
K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
FIRM #6535

CITY OF LEANDER

SCALE	
DATE	10/28/2022
SHEET NUMBER	C12 OF C21 12 OF 34



ELEVATION
N.T.S.



SECTION
N.T.S.

NOTES:

GENERAL:
1. SEE CONTRACT SPECIFICATIONS FOR DESIGN CRITERIA AND DETAILS. APPLICABLE ELEVATED TANK SPECIFICATIONS ARE AWWA D107 AND ACI 318, MOST RECENT VERSION.
2. STEEL TANK FLOOR WITHIN THE PERIMETER OF THE CONCRETE SUPPORT PEDESTAL SHALL BE SUPPORTED BY A STRUCTURAL CONCRETE SLAB.
3. PROVIDE ADEQUATE FREEBOARD TO ENSURE ROOF PROJECTIONS AND PAINTER RAIL REMAIN ABOVE THE HIGH WATER LEVEL.
4. CONCRETE PEDESTAL EXTERIOR SHALL INCORPORATE HORIZONTAL AND VERTICAL RUSTICATIONS TO CREATE A SYMMETRICAL ARCHITECTURAL PATTERN.
5. SEE CONTRACT SPECIFICATIONS. FOR STEEL TANK COATING, PIPING/FITTING/VALVE COATING AND TANK TEXT AND LOGO PAINTING REQUIREMENTS.
6. TANK APPURTENANCES ARE ROTATED FOR CLARITY.
7. OVERFLOW WEIR SHALL BE SIZED BY TANK MANUFACTURER TO PASS 12,000 GPM. SEE MINIMUM DIMENSIONS.

FOUNDATION:
1. REFER TO THE GEOTECHNICAL REPORT FOR RECOMMENDATIONS REGARDING ALLOWABLE BEARING CAPACITY.
2. DESIGN LOADS IN ACCORDANCE WITH AWWA D107 (LATEST VERSION).
3. DESIGN CONCRETE FOUNDATION IN ACCORDANCE WITH ACI 318 (LATEST VERSION).

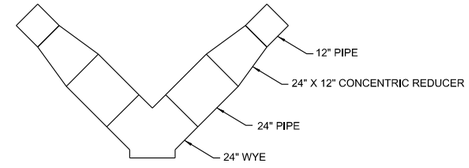
MECHANICAL:

1. INLET / OUTLET AND OVERFLOW PIPING WITHIN THE CONCRETE PEDESTAL SHALL BE TYPE 304L STAINLESS STEEL. PIPING WITHIN TANK SHALL BE CARBON STEEL AND COATED WITH TANK INTERIOR.

2. PROVIDE HANGERS, BRACKETS, AND THRUST RESTRAINT AS REQUIRED.
3. OVERFLOW SYSTEM SHALL BE DESIGNED TO ACCOMMODATE MAXIMUM FILL RATE.
4. REMOVABLE SILT STOP SHALL BE 6 INCHES ABOVE TANK FLOOR.

MISCELLANEOUS IRON:
1. ALL LADDERS AND LANDINGS SHALL BE GALVANIZED.
2. PROVIDE ALUMINUM SAFETY RAILS ON ALL LADDERS.
3. ROOF ACCESS TUBE AND TANK ACCESS HATCHES SHALL BE 36" SQUARE.
4. A REMOVABLE 24" X 36" ALUMINUM LOUVER SHALL BE INSTALLED AT THE UPPER LANDING FOR ACCESS TO THE EXTERIOR PAINTER RAIL.

ELECTRICAL:
1. MOUNT BASE LIGHTS 10 FEET ABOVE SLAB ON GRADE.
2. LADDER LIGHTS SHALL BE AT 25 FEET MAXIMUM SPACING.
3. OBSTRUCTION LIGHT TO BE LOCATED 12 INCHES ABOVE HIGHEST POINT ON TANK.



Y-MIXER

REV. NO.	BY	DATE	REVISION DESCRIPTION

STATE OF TEXAS
DALE P. MURPHY
90614
LICENSED
PROFESSIONAL ENGINEER
11/ 04/ 2022

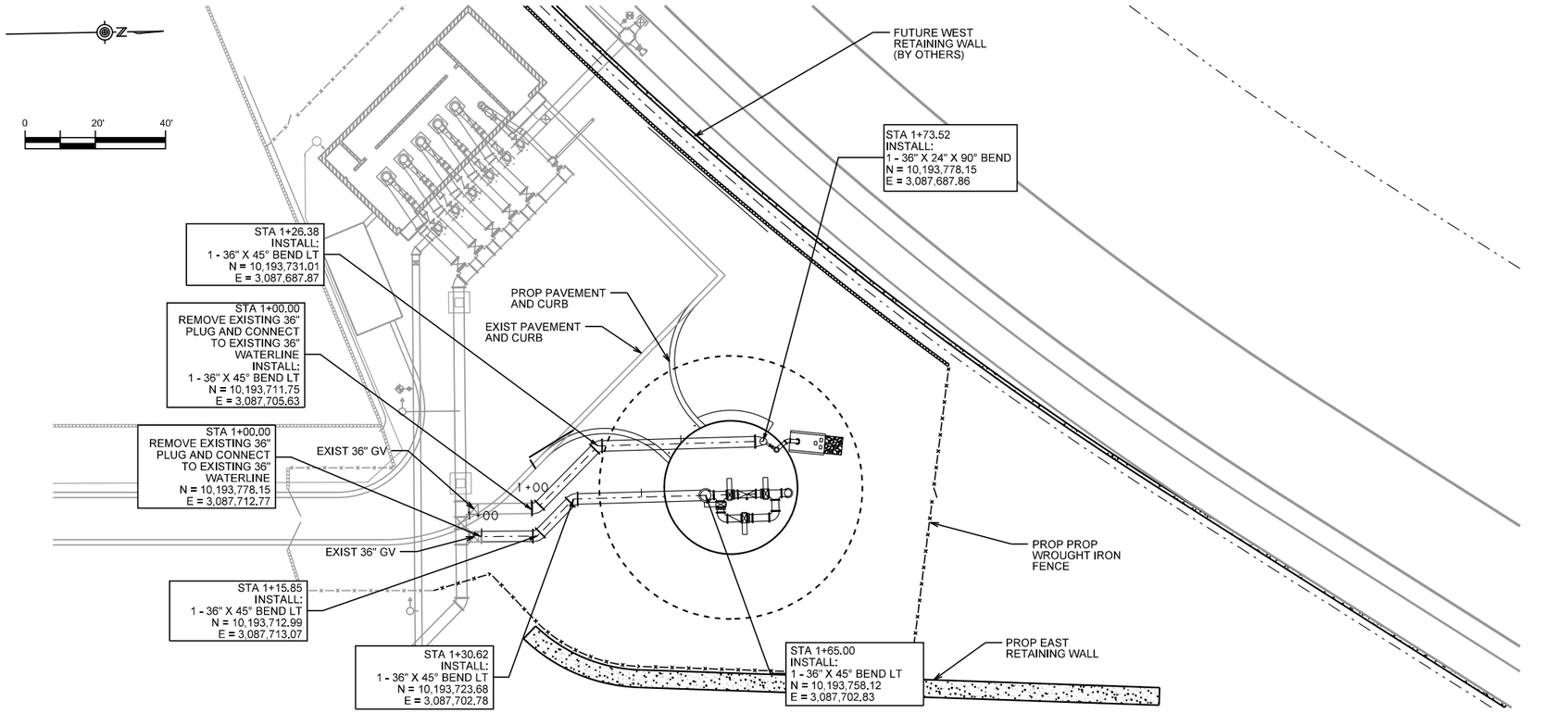
K FRIESE & ASSOCIATES, INC.
1120 S. CAPITAL OF TEXAS HWY, II-100, AUSTIN, TX 78746

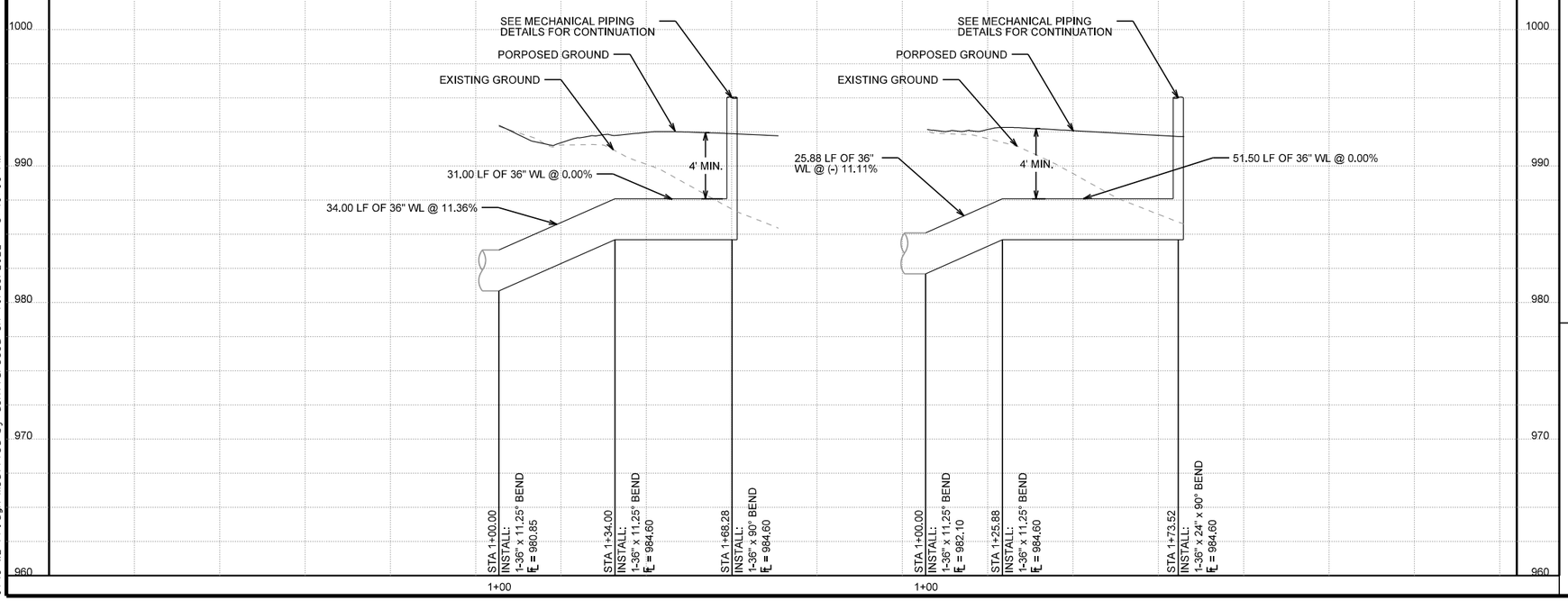
CITY OF LEANDER
SAN GABRIEL EAST ELEVATED STORAGE TANK
TANK PROFILE VIEW

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING FIRM #6535

CITY OF LEANDER

SCALE	
DATE	10/28/2022
SHEET NUMBER	C13 OF C21 13 OF 34





LEGEND

- PROPOSED WATERLINE
- PROPOSED STONE FENCE
- PROPOSED WROUGHT IRON FENCE
- LIMITS OF CONSTRUCTION
- PROPOSED EASEMENT
- PROPOSED CONTOURS
- EXIST CONTOURS
- EXIST PERMANENT EASEMENT
- EXIST FENCE TO BE REMOVED
- EXIST FIRE HYDRANT
- EXIST WATER VALVE
- EXIST AIR RELEASE VALVE
- EXIST R.O.W.
- EXIST EDGE OF PAVEMENT
- EXIST WATERLINE
- UGC — EXIST UNDERGROUND UTILITY
- OHE — EXIST OVERHEAD ELECTRIC
- EXIST FENCE
- EXIST WATER VALVE
- EXIST WATER METER
- EXIST MAILBOX
- EXIST POWER POLE
- EXIST SIGN
- TEL — EXIST TELEPHONE BOX
- EXIST UTILITY PEDESTAL
- XXX — EXIST TREE TO REMAIN
- XXX — EXIST TREE TO BE REMOVED

NOTES:

1. CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO EXCAVATION.
2. ALL PROPOSED 36-INCH WATERLINE SHALL BE FACTORY RESTRAINED.

REV. NO.	BY	DATE	REVISION DESCRIPTION

STATE OF TEXAS
DALE P. MURPHY
90614
LICENSED
PROFESSIONAL ENGINEER
11/04/2022

K FRIESE & ASSOCIATES, INC.
1120 S. CAPITAL OF TEXAS HWY, II-100, AUSTIN, TX 78746

CITY OF LEANDER

SAN GABRIEL EAST ELEVATED STORAGE TANK

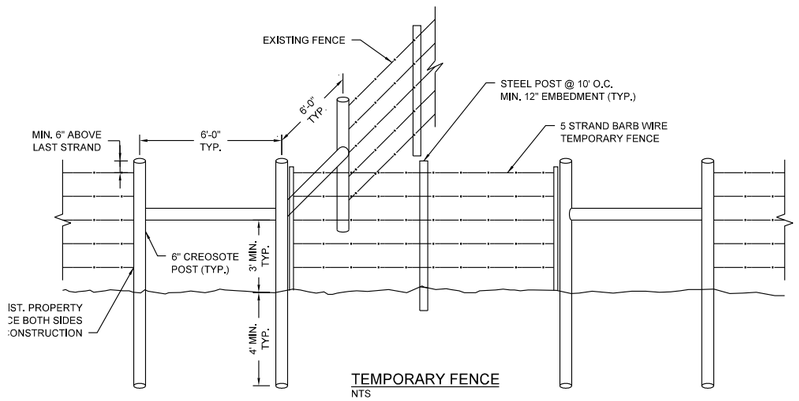
WATERLINE PLAN AND PROFILE

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
FIRM #6535

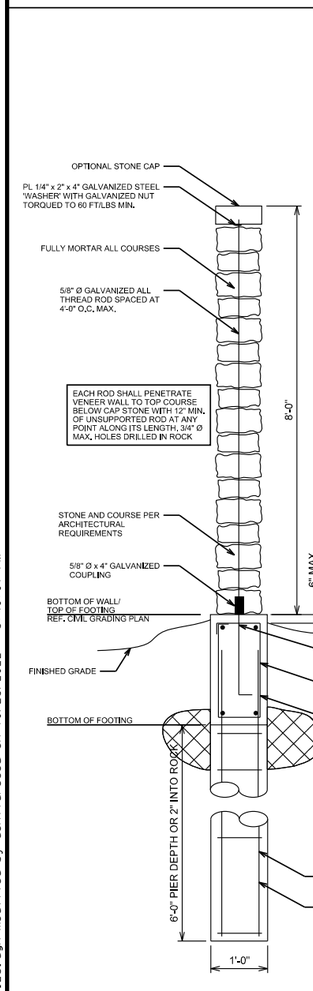
CITY OF LEANDER

SCALE	H=1"=40' V=1"=8'
DATE	10/28/2022
SHEET NUMBER	C14 OF C21 14 OF 34

0749•WL•PP.dgn modified by dchilorescu on 10/28/2022 - 3:40:06 PM

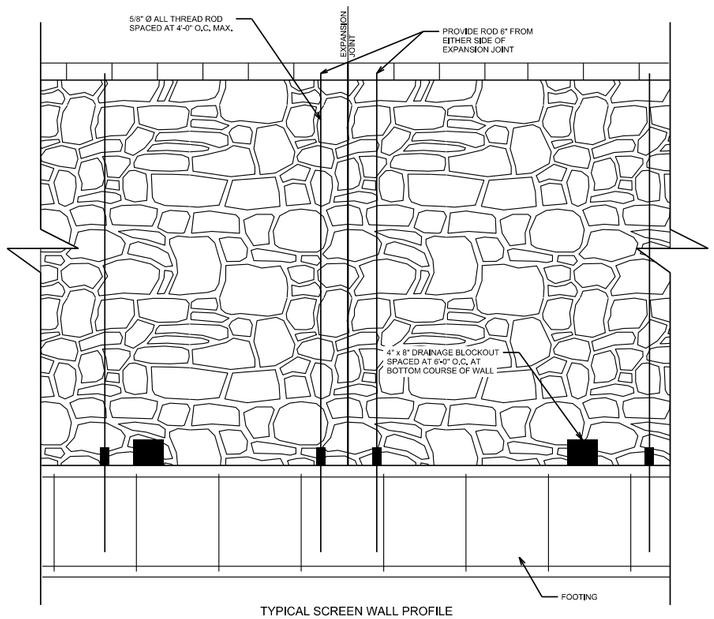


TEMPORARY FENCE
NTS

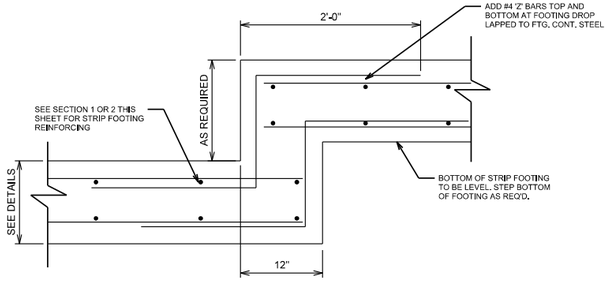


FOOTING BEARING	FOOTING DEPTH	PIERS
VIRGIN SOIL	24"	NO
2" INTO ROCK	18" MIN.	NO
UNAPPROVED FILL	18" MIN.	YES

SECTION 1 - STANDARD SCREEN WALL DETAIL
NTS

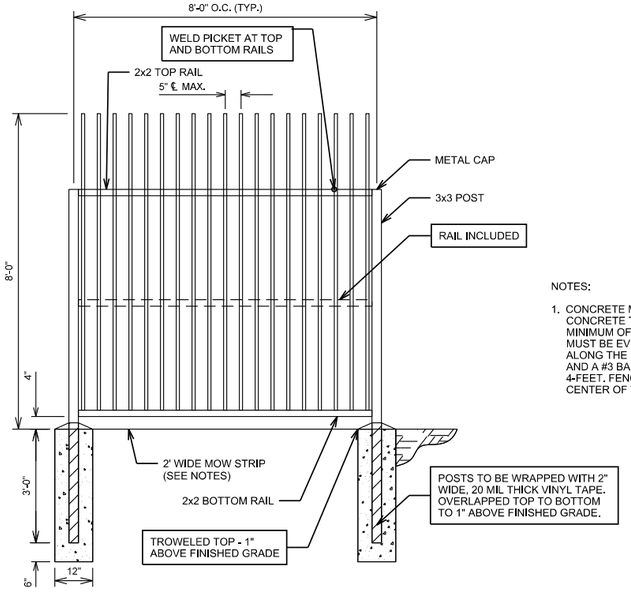


TYPICAL SCREEN WALL PROFILE
NTS



TYPICAL STEP IN STRIP FOOTING ELEVATION VIEW
NTS

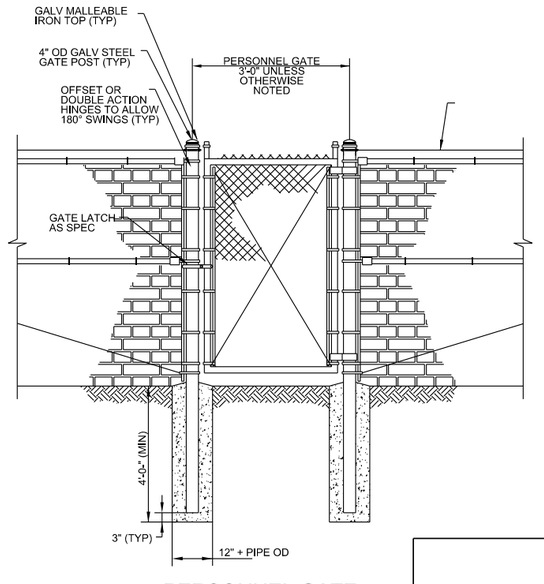
MASONRY FENCE DETAIL
NTS



WROUGHT IRON FENCE DETAIL
NTS

NOTES:

1. CONCRETE MOW STRIP SHALL BE CLASS A CONCRETE THAT IS 2-FEET WIDE AND A MINIMUM OF 4-INCHES THICK. THREE #3 BARS MUST BE EVENLY SPACED AND SUPPORTED ALONG THE FULL LENGTH OF THE MOW STRIP, AND A #3 BAR SHALL BE CROSS-TIED EVERY 4-FEET. FENCE MUST BE INSTALLED IN THE CENTER OF THE MOW STRIP.



PERSONNEL GATE
NTS

REV. NO.	BY	DATE	REVISION DESCRIPTION

STATE OF TEXAS
DALE P. MURPHY
90614
LICENSED PROFESSIONAL ENGINEER
11/04/2022

K FRIESE & ASSOCIATES, INC.
1120 S. CAPITAL OF TEXAS HWY, II-100, AUSTIN, TX 78746

CITY OF LEANDER
SAN GABRIEL EAST ELEVATED STORAGE TANK

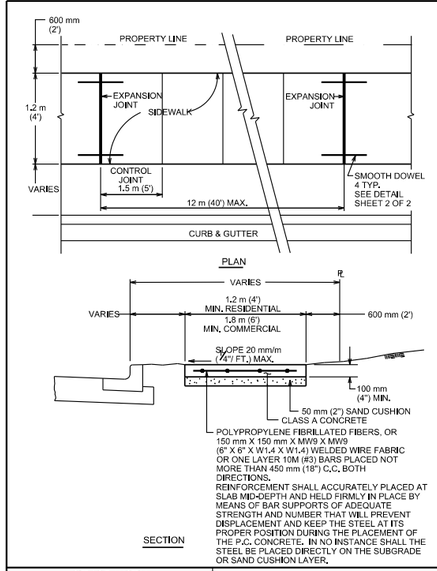
SITE DETAILS

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
FIRM #6535

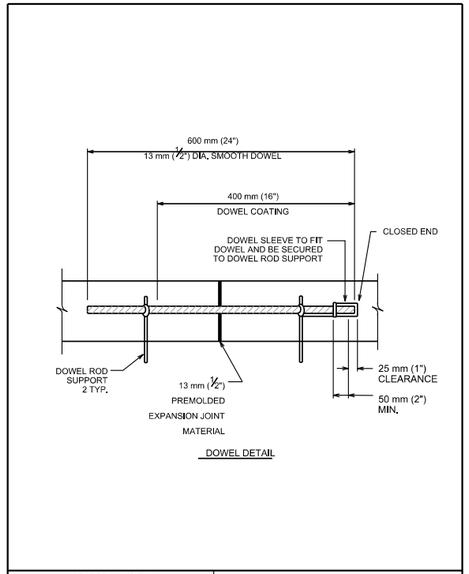
CITY OF LEANDER

SCALE	
DATE	10/28/2022
SHEET NUMBER	C15 OF C21 15 OF 34

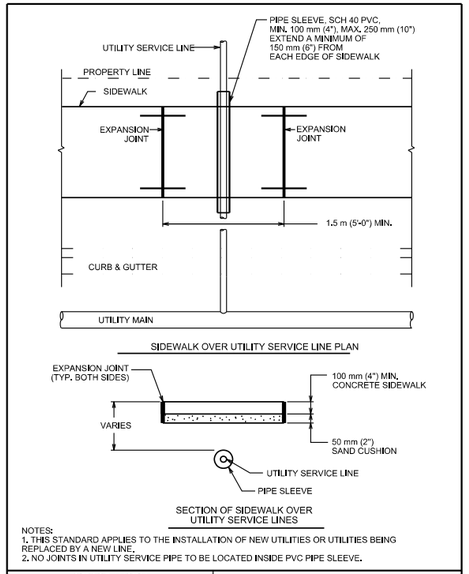
0749•SITE•DETAILS.dgn modified by dchilorescu on 10/28/2022 - 3:40:07 PM



CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		SIDEWALK	
RECORD COPY SIGNED BY BILL GARDNER	03/26/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 432S-1 1 OF 3

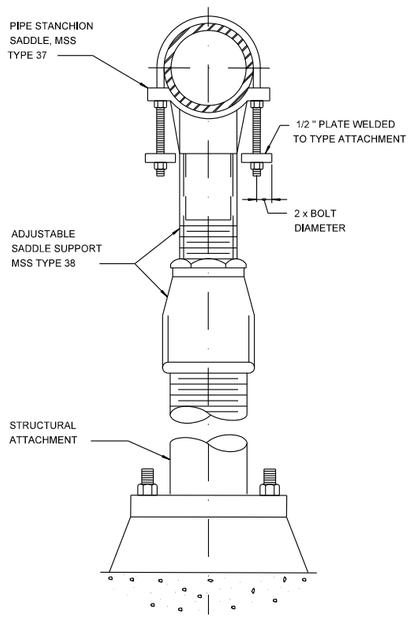


CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		SIDEWALK	
RECORD COPY SIGNED BY BILL GARDNER	03/26/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 432S-1 2 OF 3

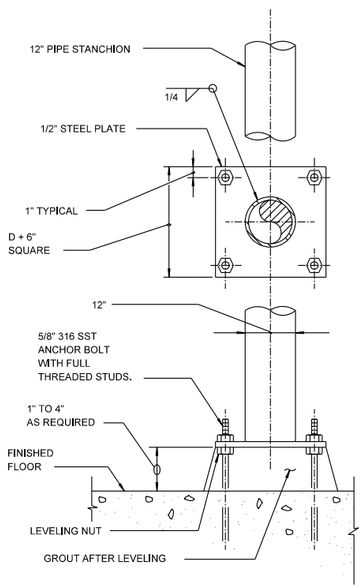


NOTES:
1. THIS STANDARD APPLIES TO THE INSTALLATION OF NEW UTILITIES OR UTILITIES BEING REPLACED BY A NEW LINE.
2. NO JOINTS IN UTILITY SERVICE PIPE TO BE LOCATED INSIDE PVC PIPE SLEEVE.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		SIDEWALK	
RECORD COPY SIGNED BY BILL GARDNER	03/26/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 432S-1 3 OF 3



PIPE SUPPORT



STRUCTURAL ATTACHMENT

NOTES:

1. FOR A TWO-ROD SYSTEM, RODS SHALL BE A MINIMUM OF 1" AND THE MAXIMUM LOAD IS 4,960 LBS. FOR A SINGLE-ROD SYSTEM, RODS SHALL BE A MINIMUM OF 1 1/4" AND THE MAXIMUM LOAD IS 8,000 LBS.
2. MAXIMUM SPAN SHALL BE 12 FT. OR AS APPROVED BY ENGINEER.
3. PROVIDE A MINIMUM OF ONE PIPE HANGER PER PIPE LENGTH, WITHIN 4-INCHES OF THE BELL.
4. UNLESS OTHERWISE SPECIFIED, HANGERS AND SUPPORT SHALL BE 316 STAINLESS STEEL. NUTS, BOLTS, WASHERS AND ALL EMBEDDED ITEMS SHALL BE TYPE 316 STAINLESS STEEL. DISSIMILAR METAL ISOLATION STRIPS SHALL BE AROUND PIPES AT ALL HANGERS.
5. PIPE SUPPORTS SHALL BE SECURED WITH EPOXY ADHESIVE ANCHORS.

PIPE SUPPORT DETAIL
NTS

REV. NO.	BY	DATE	REVISION DESCRIPTION

DALE P. MURPHY
90614
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
11/04/2022

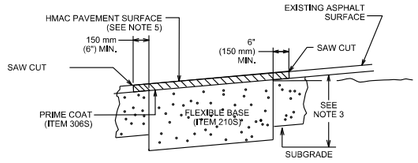
K FRIESE & ASSOCIATES, INC.
1120 S. CAPITAL OF TEXAS HWY, II-100, AUSTIN, TX 78746

CITY OF LEANDER
SAN GABRIEL EAST ELEVATED STORAGE TANK
TYPICAL DETAILS

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING FIRM #9535

CITY OF LEANDER

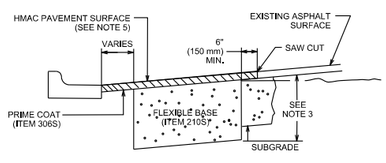
SCALE	
DATE	10/28/2022
SHEET NUMBER	C16 OF C21 16 OF 34



NOTES:

1. PAVEMENT REPAIRS FOR DESIGNATED 'NEW STREETS' (UTILITY CRITERIA MANUAL SECTION 5.1.1) SHALL BE COMPLETED IN CONFORMANCE WITH STANDARDS 1100S-7, 1100S-8A AND 1100s-8B.
2. ALL REPAIRS FOR OTHER STREET DESIGNATIONS SHALL BE MADE USING THIS STANDARD.
3. ALL DAMAGE CAUSED DIRECTLY OR INDIRECTLY TO THE STREET SURFACE OR SUBSURFACE OUTSIDE OF THE PAVEMENT CUT AREAS INCLUDING SCRAPES, CUTS, GOUGES, CRACKING, DEPRESSIONS, AND /OR ANY OTHER DAMAGE CAUSED BY THE CONTRACTOR DURING EXECUTION OF THE WORK SHALL BE REGARDED AS PART OF THE STREET REPAIR.
4. THE EXISTING PAVING SURFACE SHALL BE SAW CUT IN A STRAIGHT LINE, A MINIMUM OF 6" (300 mm) ON EITHER SIDE, WIDER THAN UNDISTURBED SIDES OF THEDISTURBANCE AREA.
5. A FLEXIBLE BASE LAYER EQUAL TO EXISTING BASE LAYER THICKNESS OR A MINIMUM OF 3" SHALL BE PLACED AND COMPACTED TO 100% STANDARD PROCTOR IN CONFORMANCE WITH STANDARD SPECIFICATION NO. 210S.
6. THE EXPOSED SUBGRADE WILL BE COMPACTED IN CONFORMANCE WITH STANDARD SPECIFICATION NO. 210S.
7. REPLACEMENT AC SURFACE LAYER SHALL AS FOLLOWS:
TYPE "C" HMAC SURFACE LAYER PLACED IN CONFORMANCE WITH STANDARD SPECIFICATION ITEM NO. 340S WITH A THICKNESS THAT IS GREATER VALUE OF 1 1/2" MINIMUM, OR THICKNESS OF EXISTING ASPHALT LAYER.
8. TACK COAT ALL EXPOSED EDGES AND SURFACES (SPEC ITEM 307S).

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		EXISTING PAVEMENT REPAIR FOR NON TRENCH AREAS PERPENDICULAR TO CURB ALIGNMENT	
RECORD COPY SIGNED BY SAM ANGOORI	*10/19/09* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USEOF THIS STANDARD.	STANDARD NO. 1100S-10A



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1. PAVEMENT REPAIRS FOR DESIGNATED 'NEW STREETS' (UTILITY CRITERIA MANUAL SECTION 5.1.1) SHALL BE COMPLETED IN CONFORMANCE WITH STANDARDS 1100S-7, 1100S-8A AND 1100s-8B.
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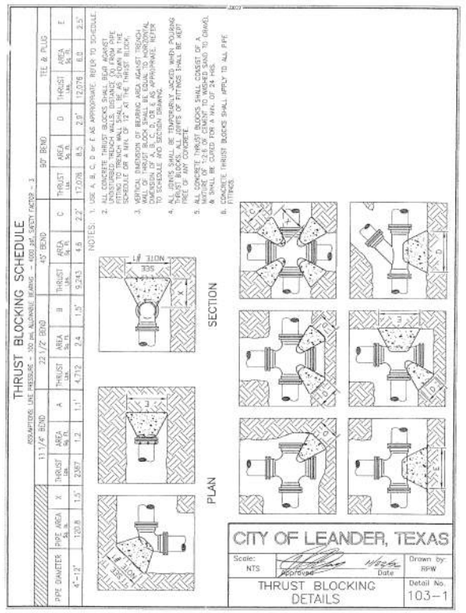
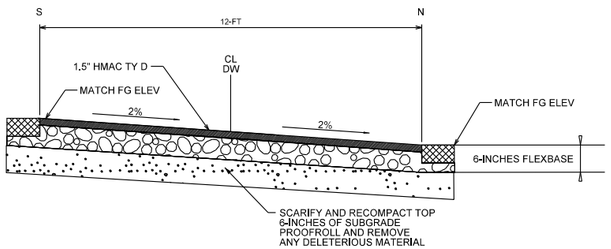
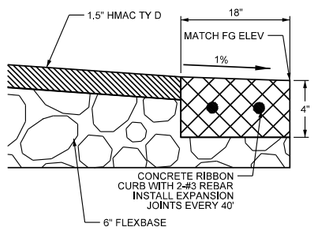
8. TACK COAT ALL EXPOSED EDGES AND SURFACES (SPEC ITEM 307S).

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		EXISTING PAVEMENT REPAIR FOR NON TRENCH AREAS PARALLEL TO CURB ALIGNMENT	
RECORD COPY SIGNED BY SAM ANGOORI	*10/19/09* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 1100S-10B

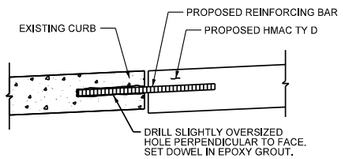




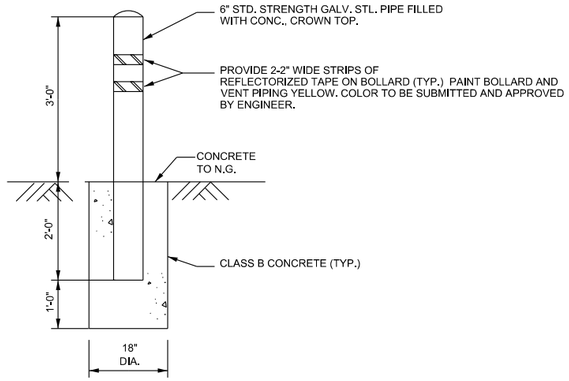
TYPICAL DRIVEWAY SECTION
NTS



DRIVEWAY RIBBON CURB DETAIL
NTS



REINFORCING BAR DETAIL
NTS



BOLLARD DETAIL

REV. NO.	BY	DATE	REVISION DESCRIPTION

STATE OF TEXAS
DALE P. MURPHY
90614
LICENSED
PROFESSIONAL ENGINEER
11/04/2022

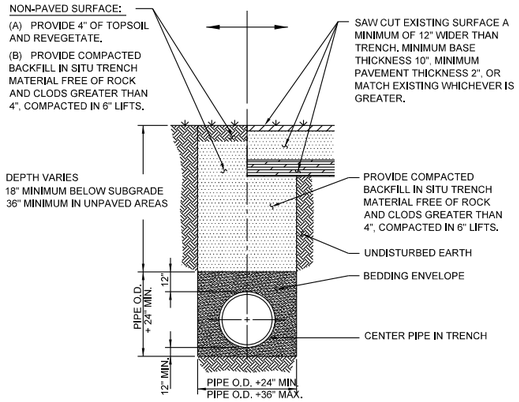
K FRIESE & ASSOCIATES, INC.
1120 S. CAPITAL OF TEXAS HWY, II-100, AUSTIN, TX 78746

CITY OF LEANDER
SAN GABRIEL EAST ELEVATED STORAGE TANK
TYPICAL DETAILS

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
FIRM #6525

CITY OF LEANDER

SCALE	
DATE	10/28/2022
SHEET NUMBER	C17 OF C21 17 OF 34



NOTES:

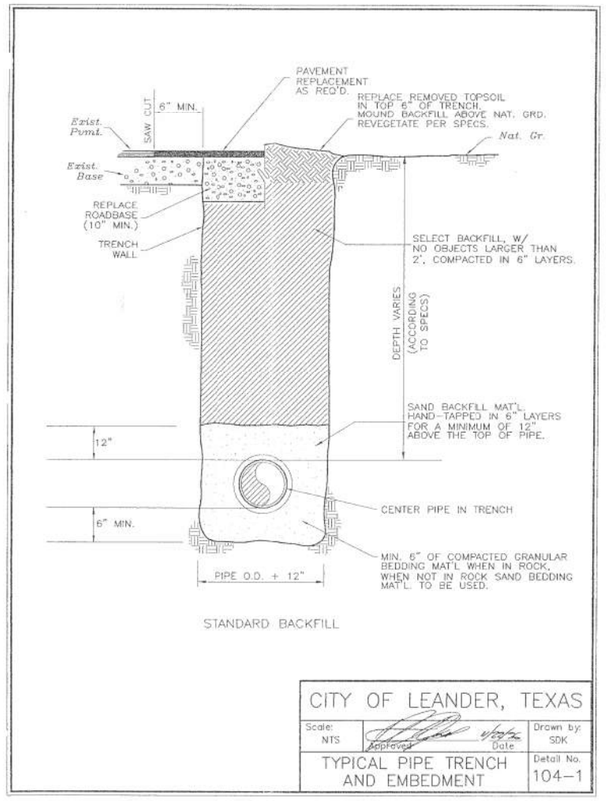
1. ALL TRENCHING AND TRENCH SAFETY SHALL COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

2. FLOWABLE BACKFILL SHALL CONSIST OF A MIXTURE OF NATIVE SOILS OR MANUFACTURED MATERIALS, CEMENT AND/OR FLY ASH, AND WATER WHICH PRODUCES A MATERIAL WITH UNCONFINED COMPRESSIVE STRENGTH OF BETWEEN 250 AND 450 PSI AFTER 28 DAYS. ANY MATERIALS USED SHALL BE PRIMARILY GRANULAR, WITH A PLASTICITY INDEX <12 AND WITH 100% PASSING A ¾ INCH SIEVE. THE FLOWABLE MIXTURE SHALL BE MIXED IN A PUG MILL, CONCRETE MIXER, OR TRANSIT MIXER AND SHALL HAVE A MINIMUM SLUMP OF INCHES. THE FLOWABLE MIXTURE MUST BE ALLOWED TO SET PRIOR TO THE PLACEMENT OF ANY OVERLAYING MATERIAL.

WATERLINE BEDDING AND SURFACE REPAIR DETAIL

(NON-PAVED & PAVED SURFACES)

NTS



STANDARD BACKFILL

CITY OF LEANDER, TEXAS		
Scale: NTS	Approved / Date	Drawn by: SDK
TYPICAL PIPE TRENCH AND EMBEDMENT		Detail No. 104–1

REV. NO.	BY	DATE	REVISION DESCRIPTION

STATE OF TEXAS
DALE P. MURPHY
90614
LICENSED
PROFESSIONAL ENGINEER
11/04/2022

K FRIESE & ASSOCIATES, INC.
1120 S. CAPITAL OF TEXAS HWY, II-100, AUSTIN, TX 78746

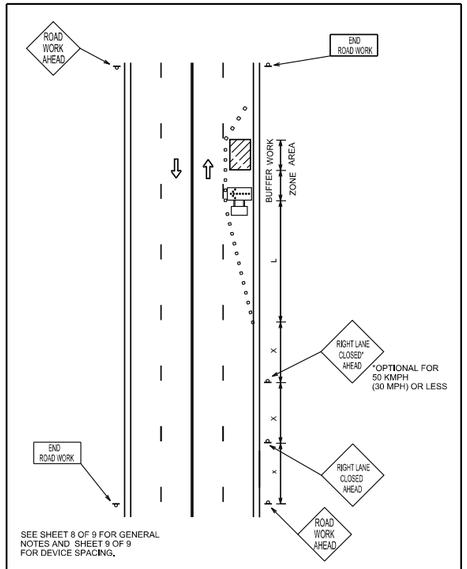
CITY OF LEANDER
SAN GABRIEL EAST ELEVATED STORAGE TANK

TYPICAL DETAILS

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING FIRM #9538

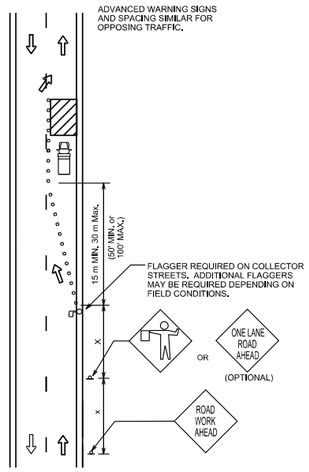
CITY OF LEANDER

SCALE	
DATE	10/28/2022
SHEET NUMBER	C18 OF C21 18 OF 34



SEE SHEET 8 OF 9 FOR GENERAL NOTES AND SHEET 9 OF 9 FOR DEVICE SPACING.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	ARTERIAL ONE LANE CLOSURE	
RECORD COPY SIGNED BY KERI JUAREZ — 01/04/11 — ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 804S-1 1 OF 9



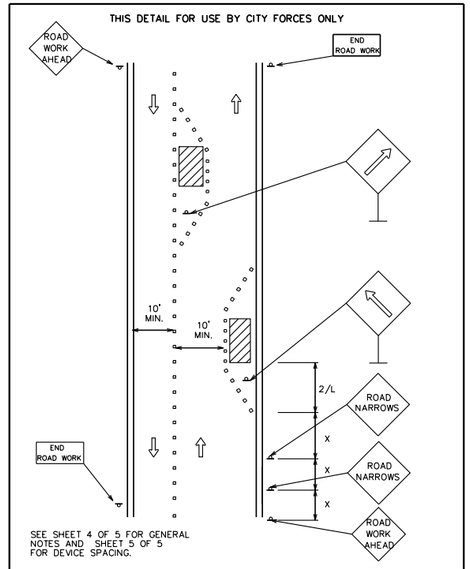
SEE SHEET 8 OF 9 FOR GENERAL NOTES AND SHEET 9 OF 9 FOR DEVICE SPACING.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	COLLECTOR/RESIDENTIAL LANE CLOSURES	
RECORD COPY SIGNED BY KERI JUAREZ — 01/04/11 — ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 804S-1 5 OF 9

1. ALL SETUPS SHALL BE IN ACCORDANCE WITH THE CURRENT ADDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND THE CITY OF AUSTIN TRANSPORTATION CRITERIA MANUAL.
2. TO DETERMINE APPROPRIATE DEVICES AND SIGN SIZES TO BE USED, REFER TO STANDARD 804S-5. SHEETS 5, 6 AND 7 OF 11.
3. FOR INTERMEDIATE-TERM SITUATIONS, WHEN IT IS NOT FEASIBLE TO REMOVE AND RESTORE PAVEMENT MARKINGS, THE CHANNELIZATION MUST BE MADE DOMINANT BY USING A VERY CLOSE DEVICE SPACING. THIS IS ESPECIALLY IMPORTANT IN LOCATIONS OF CONFLICTING INFORMATION, SUCH AS WHERE TRAFFIC IS DIRECTED OVER A DOUBLE YELLOW CENTERLINE. IN SUCH LOCATIONS, A MAXIMUM CHANNELIZING DEVICE SPACING OF 3 m (10') IS REQUIRED.
4. FOR LONG TERM STATIONARY WORK, ALL CONFLICTING PAVEMENT MARKINGS MUST BE REMOVED AND CENTERLINE STRIPING PROVIDED WHERE TWO WAY TRAFFIC IS IN ADJACENT LANES.
5. FOR TEMPORARY PAVEMENT MARKING REQUIREMENTS SEE STANDARD 804S-3.
6. FOR ONE-WAY AND MULTI-LANE ROADWAYS THE "LANE BLOCKED" SIGN MAY BE USED IN LIEU OF THE "LANE CLOSED AHEAD" SIGN. THE NUMBER OF DIGITS ON THE SIGN SHALL NOT BE GREATER THAN THE NUMBER OF LANES PRESENT ON THE ROADWAY. THE "X" SHALL BE PLACED UNDER THE NUMBER OF LANE(S) BLOCKED.
7. FOR FLAGGING OPERATION REQUIREMENTS SEE STANDARD 804S-2.
8. CONTRACTOR SHALL PROVIDE SIDEWALK CLOSURES, CROSSWALK CLOSURES OR WALKWAY BYPASS WHEREVER PEDESTRIAN MOVEMENTS ARE AFFECTED BY CONSTRUCTION ACTIVITIES. ALL SIDEWALKS AND CROSSWALKS SHALL BE ACCESSIBLE WHEN CONTRACTOR IS NOT WORKING UNLESS APPROVED BY THE TRANSPORTATION DIVISION.
9. FOR EXCAVATION PROTECTION AND SAFETY FENCE REQUIREMENTS SEE STANDARD 804S-4.
10. THE USE OF ARROW DISPLAYS ARE REQUIRED ON ALL LANE CLOSURES. THE CONTRACTOR SHALL PROVIDE ONE (1) STAND-BY UNIT IN GOOD WORKING CONDITION AT THE JOB SITE, READY FOR USE IF THE OPERATION REQUIRES 24-HOUR A DAY LANE CLOSURE SET-UPS.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	GENERAL NOTES	
RECORD COPY SIGNED BY KERI JUAREZ — 01/04/11 — ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 804S-1 8 OF 9

THIS DETAIL FOR USE BY CITY FORCES ONLY



SEE SHEET 4 OF 5 FOR GENERAL NOTES AND SHEET 5 OF 5 FOR DEVICE SPACING.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	RESIDENTIAL ROAD NARROWS FOR CL/CURB WORK	
RECORD COPY SIGNED BY BILL GARDNER — *11/13/07* — ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 804S-1A 2 OF 5

THIS DETAIL FOR USE BY CITY FORCES ONLY

1. ALL SETUPS SHALL BE IN ACCORDANCE WITH THE CURRENT ADDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND THE CITY OF AUSTIN TRANSPORTATION CRITERIA MANUAL.
2. TO DETERMINE APPROPRIATE DEVICES AND SIGN SIZES TO BE USED, REFER TO STANDARD 804S-5. SHEETS 5, 6 AND 7 OF 11.
3. FOR INTERMEDIATE-TERM SITUATIONS, WHEN IT IS NOT FEASIBLE TO REMOVE AND RESTORE PAVEMENT MARKINGS, THE CHANNELIZATION MUST BE MADE DOMINANT BY USING A VERY CLOSE DEVICE SPACING. THIS IS ESPECIALLY IMPORTANT IN LOCATIONS OF CONFLICTING INFORMATION, SUCH AS WHERE TRAFFIC IS DIRECTED OVER A DOUBLE YELLOW CENTERLINE. IN SUCH LOCATIONS, A MAXIMUM CHANNELIZING DEVICE SPACING OF 3 m (10') IS REQUIRED.
4. FOR LONG TERM STATIONARY WORK, ALL CONFLICTING PAVEMENT MARKINGS MUST BE REMOVED AND CENTERLINE STRIPING PROVIDED WHERE TWO WAY TRAFFIC IS IN ADJACENT LANES.
5. FOR TEMPORARY PAVEMENT MARKING REQUIREMENTS SEE STANDARD 804S-3.
6. FOR ONE-WAY AND MULTI-LANE ROADWAYS THE "LANE BLOCKED" SIGN MAY BE USED IN LIEU OF THE "LANE CLOSED AHEAD" SIGN. THE NUMBER OF DIGITS ON THE SIGN SHALL NOT BE GREATER THAN THE NUMBER OF LANES PRESENT ON THE ROADWAY. THE "X" SHALL BE PLACED UNDER THE NUMBER OF LANE(S) BLOCKED.
7. FOR FLAGGING OPERATION REQUIREMENTS SEE STANDARD 804S-2.
8. CONTRACTOR SHALL PROVIDE SIDEWALK CLOSURES, CROSSWALK CLOSURES OR WALKWAY BYPASS WHEREVER PEDESTRIAN MOVEMENTS ARE AFFECTED BY CONSTRUCTION ACTIVITIES. ALL SIDEWALKS AND CROSSWALKS SHALL BE ACCESSIBLE WHEN CONTRACTOR IS NOT WORKING UNLESS APPROVED BY THE TRANSPORTATION DIVISION.
9. FOR EXCAVATION PROTECTION AND SAFETY FENCE REQUIREMENTS SEE STANDARD 804S-4.
10. THE USE OF ARROW DISPLAYS ARE REQUIRED ON ALL LANE CLOSURES. THE CONTRACTOR SHALL PROVIDE ONE (1) STAND-BY UNIT IN GOOD WORKING CONDITION AT THE JOB SITE, READY FOR USE IF THE OPERATION REQUIRES 24-HOUR A DAY LANE CLOSURE SET-UPS.
11. WHEN ACTIVITY ENCROACHES OR BLOCKS A BIKE LANE, SIGNS ARE REQUIRED TO INDICATE BIKE LANE CLOSURES.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	GENERAL NOTES	
RECORD COPY SIGNED BY BILL GARDNER — *11/13/07* — ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 804S-1A 4 OF 5

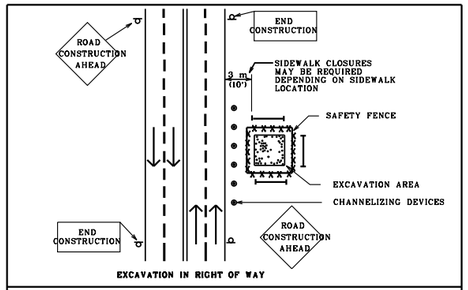
THIS DETAIL FOR USE BY CITY FORCES ONLY

Typical Transition Lengths and Suggested Maximum Spacing of Devices

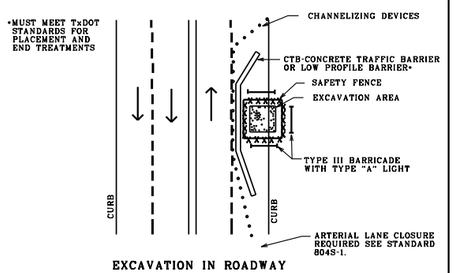
Speed KMPH	Posted Speed MPH	Formula	Minimum Desirable Taper Lengths (L) Meters (Feet) 3.0(10) Offset Meters (feet)	3.3(11) Offset Meters (feet)	3.6(12) Offset Meters (feet)	Suggested Max. Device Spacing On a taper Meters (feet)	On a tangent Meters (feet)	Suggested Sign Spacing Meters (Feet) "X" Dimension
50	30	$L=\frac{WS^2}{60}$	45 (150)	50 (165)	55 (180)	9 (30)	15–20 (60–75)	40 (120)
55	35		65 (205)	70 (225)	75 (245)	10 (35)	25–25 (70–90)	50 (160)
65	40		80 (265)	90 (295)	100 (320)	12 (40)	25–30 (80–100)	75 (240)
70	45	L=WS	135 (450)	150 (495)	165 (540)	13 (45)	25–30 (90–110)	100 (320)
80	50		150 (500)	165 (550)	180 (600)	15 (50)	30–35 (100–125)	120 (400)
90	55		165 (550)	185 (605)	200 (660)	16 (55)	35–40 (110–140)	150 (500)
95	60		180 (600)	200 (660)	220 (720)	18 (60)	40–45 (120–150)	180 (600)
105	65		195 (650)	215 (715)	235 (780)	19 (65)	40–50 (130–165)	210 (700)
115	70		215 (700)	235 (770)	255 (840)	21 (70)	45–55 (140–175)	240 (800)

LEGEND
- Channelizing devices
- Trailer mounted flashing arrow board
- Flagger

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	DEVICE SPACING	
RECORD COPY SIGNED BY BILL GARDNER — *11/13/07* — ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 804S-1A 5 OF 5



EXCAVATION IN RIGHT OF WAY



EXCAVATION IN ROADWAY

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	LARGE EXCAVATION	
RECORD COPY SIGNED BY SAM ANGOORI — *04/03/09* — ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 804S-4 3 OF 9

REV. NO.	BY	DATE	REVISION DESCRIPTION

STATE OF TEXAS
DALE P. MURPHY
90614
LICENSED PROFESSIONAL ENGINEER
11/04/2022

K FRIESE & ASSOCIATES, INC.
1120 S. CAPITAL OF TEXAS HWY, II-100, AUSTIN, TX 78746

CITY OF LEANDER
SAN GABRIEL EAST ELEVATED STORAGE TANK

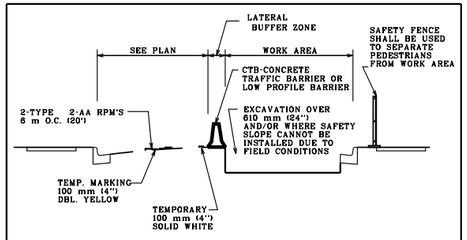
TRAFFIC CONTROL DETAILS

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
FIRM #6535

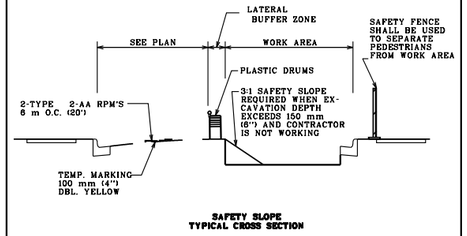
CITY OF LEANDER

SCALE	
DATE	10/28/2022
SHEET NUMBER	C19 OF C21 19 OF 34

0749•TRAFFIC •CONTROL•DETAILS•01.dgn modified by dchilorescu on 10/28/2022 - 3:40:19 PM

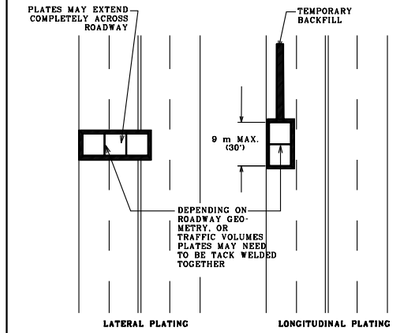


POSITIVE BARRIERS
TYPICAL CROSS SECTION

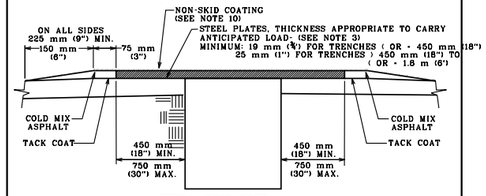


SAFETY SLOPE
TYPICAL CROSS SECTION

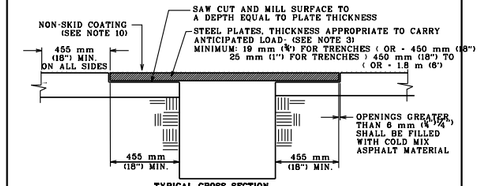
CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		WORK AREA PROTECTION	STANDARD NO.
RECORD COPY SIGNED BY SAM ANGOORI	04/03/09	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	804S-4
ADOPTED			4 OF 9



CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		STEEL PLATING	STANDARD NO.
RECORD COPY SIGNED BY SAM ANGOORI	04/03/09	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	804S-4
ADOPTED			5 OF 9



TYPICAL CROSS SECTION
CASE I- LOW TRAFFIC VOLUME/LIMITED IN-SERVICE TIME



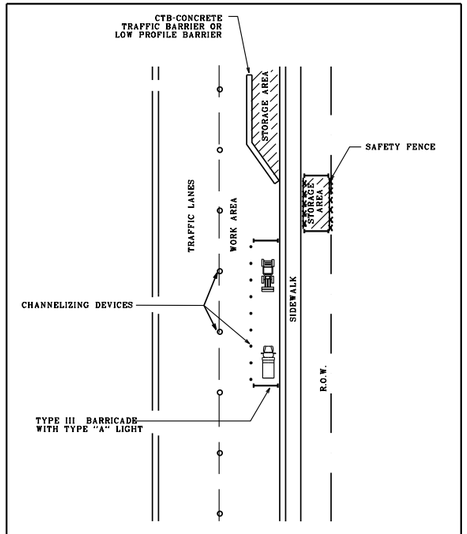
TYPICAL CROSS SECTION
CASE II- EXTENDED IN-SERVICE PLATING AND/OR HEAVILY-TRAFFICKED ROADS/STREETS (HMAC PAVEMENTS ONLY)

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		STEEL PLATING	STANDARD NO.
RECORD COPY SIGNED BY SAM ANGOORI	04/03/09	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	804S-4
ADOPTED			6 OF 9

NOTES:

1. WHERE TRAFFIC MUST CROSS TRENCHES, THE CONTRACTOR SHALL PROVIDE SUITABLE BRIDGES.
2. THE USE OF STEEL PLATES SHALL BE APPROVED BY THE RIGHT OF WAY MANAGEMENT DIVISION OF WATERSHED PROTECTION AND DEVLOPMENT DEPARTMENT PRIOR TO INITIATION OF CONSTRUCTION.
3. THE THICKNESS OF PLATES FOR TRENCH WIDTHS EXCEEDING 1.8 m (6') SHALL BE ESTABLISHED IN AN ANALYSIS COMPLETED BY A LICENSED PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF TEXAS. THE ANALYSIS SHALL BE BASED ON HS-20 TRAFFIC LOADING WITH A MAXIMUM PLATE DEFLECTION OF 50 mm (2") WHEN EXPERIENCING SAID LOADING. FOR SITUATIONS WHERE MULTIPLE LAYERS OF PLATES (OR STACKED PLATES) ARE TO BE EMPLOYED, THE SEAMS (IE. THE INTERFACE BETWEEN PLACED SIDE-BY-SIDE) OF THE UPPER LAYER SHALL BE PLACED PERPENDICULAR TO THE SEAMS OF THE UNDERLYING PLATES.
4. WHEN APPROVED, THE TYPE OF PLATE INSTALLATION SHALL BE BASED ON THE ANTICIPATED LENGTH OF TIME THE PLATE WILL BE IN SERVICE:
   CASE I: A CASE I INSTALLATION SHALL APPLY FOR NO LONGER THAN A 2 WEEK PERIOD.
   CASE II: A CASE II INSTALLATION SHALL APPLY FOR NO LONGER THAN 2 WEEK PERIOD.
5. THE TOPSIDE OF THE STEEL PLATE SHALL BE FLAT AND FREE OF ANY CLIPS, CHAINS, ATTACHMENTS, WELDMENTS OR SURFACE IRREGULARITIES.
6. PLATES WITH A PERMANENT DISPLACEMENT (I.E. DISPLACEMENT ANYWHERE ON THE SURFACE OF THE PLATE WITH RESPECT TO A PLANE FORMED BY THE OUTSIDE EDGES) THAT EXCEEDS 12 mm (½") SHALL NOT BE USED FOR PLATING PURPOSES. PLATES THAT DEVELOP A PERMANENT DISPLACEMENT EXCEEDING 12 mm (½") DURING SERVICE SHALL BE REMOVED AND REPLACED.
7. THE PLATES SHALL BE PROVIDED WITH APPROPRIATE NUMBER OF KEYHOLE SLOTS OR CIRCULAR HOLES FOR HANDLING, LIFTING, INSTALLATION AND REMOVAL PURPOSES.
8. THE CONTRACTOR SHOULD AVOID USING A LONG SERIES OF PLATES THAT RUN PARALLEL TO VEHICULAR TRAFFIC WHEELS PATHS.
9. ADDITIONAL METHODS OF SECURING PLATES MAY BE REQUIRED DEPENDING ON FIELD CONDITIONS.
10. FOR PLATES 1.8 M (6') OR GREATER IN DIRECTION OF TRAFFIC, A NON-SKID COATING SHOULD BE APPLIED TO THE ENTIRE SURFACE AREA OF ALL PLATES, AS WELL AS ADJACENT AREAS. THE NON-SKID COATING SHALL BE TCA (TEXTURED COATING OF AMERICA, INC.) STRATA-GRIP DECK COATING SYSTEM: SLIPFIX, INC. SPS (SLIP PROTECTION SURFACE) OR AN EQUIVALENT PRODUCT APPROVED BY THE ENGINEER OR DESIGNATED REPRESENTATIVE.

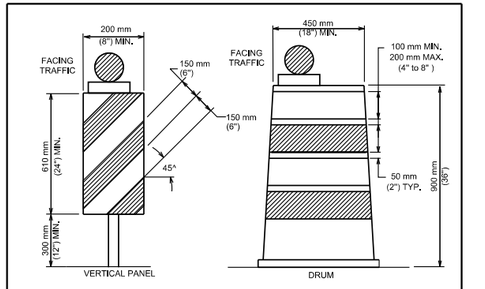
CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		STEEL PLATING	STANDARD NO.
RECORD COPY SIGNED BY SAM ANGOORI	04/03/09	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	804S-4
ADOPTED			7 OF 9



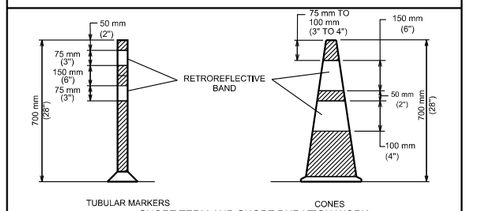
CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		MATERIAL AND EQUIPMENT STORAGE	STANDARD NO.
RECORD COPY SIGNED BY SAM ANGOORI	04/03/09	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	804S-4
ADOPTED			8 OF 9

1. STORAGE OF EQUIPMENT AND MATERIALS SHALL BE RESTRICTED TO LOCATIONS WHERE DRIVER SIGHT DISTANCES TO TRAFFIC, PEDESTRIANS, BUSINESSES AND SIDE STREET INTERSECTIONS ARE NOT OBSTRUCTED OR WHERE AN UNSIGHTLY APPEARANCE, AS DETERMINED BY THE ENGINEER, WILL NOT EXIST.
2. EQUIPMENT MUST BE PARKED AS FAR AWAY FROM THE TRAVELWAYS AS PRACTICAL.
3. TOTAL AREA USED FOR EQUIPMENT STORAGE SHALL BE KEPT TO A MINIMUM.
4. ALL MATERIALS STORED IN THE RIGHT-OF-WAY MUST BE MAINTAINED IN A NEAT AND ORGANIZED MANNER.
5. MATERIALS STORED MAY NOT BE MORE THAN 915 mm (36") IN HEIGHT.
6. ALL MATERIALS STORED MUST BE USED WITHIN THREE (3) DAYS.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		MATERIAL AND EQUIPMENT STORAGE	STANDARD NO.
RECORD COPY SIGNED BY SAM ANGOORI	04/03/09	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	804S-4
ADOPTED			9 OF 9



LONG TERM AND INTERMEDIATE TERM STATIONARY WORK



SHORT TERM AND SHORT DURATION WORK

SEE STANDARD 804S-5
SHEET 12 OF 13 AND SHEET 13 OF 13
FOR GENERAL NOTES AND DEVICE SPACING.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		CHANNELIZING DEVICES	STANDARD NO.
RECORD COPY SIGNED BY SAM ANGOORI	01/04/10	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	804S-5
ADOPTED			1 OF 13

REV. NO.	BY	DATE	REVISION DESCRIPTION

STATE OF TEXAS
DALE P. MURPHY
90614
LICENSED PROFESSIONAL ENGINEER
11/04/2022

K FRIESE & ASSOCIATES, INC.
1120 S. CAPITAL OF TEXAS HWY, II-100, AUSTIN, TX 78746

CITY OF LEANDER
SAN GABRIEL EAST ELEVATED STORAGE TANK

TRAFFIC CONTROL DETAILS

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
FIRM #6535

CITY OF LEANDER

SCALE	
DATE	10/28/2022
SHEET NUMBER	C20 OF C21
	20 OF 34

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CHANNELIZING DEVICES

1.ALL CHANNELIZING DEVICES SHALL HAVE WARNING LIGHTS OR LARGE REFLECTORS WHEN USED AT NIGHT. FLASHING WARNING LIGHTS MAY BE PLACED ON CHANNELIZING DEVICES USED SINGULARLY OR IN GROUPS TO MARK A SPOT CONDITION. WARNING LIGHTS ON CHANNELIZING DEVICES USED IN A SERIES SHALL BE STEADY-BURN. CHANNELIZING DEVICES IN TAPERS AT NIGHT SHALL HAVE TYPE C WARNING LIGHTS.
2.THE RETROREFLECTIVE MATERIAL USED ON CHANNELIZING DEVICES SHALL HAVE A SMOOTH, SEALED OUTER SURFACE.
3.THE NAME AND TELEPHONE NUMBER OF THE AGENCY, CONTRACTOR OR SUPPLIER SHALL BE SHOWN ON THE NON-RETROREFLECTIVE SURFACE OF ALL CHANNELIZING DEVICES. THE LETTERS AND NUMBERS SHALL BE A NON-RETROREFLECTIVE COLOR AND NOT OVER 50 mm (2") IN HEIGHT.
4.PARTICULAR ATTENTION SHOULD BE GIVEN TO ASSURE THAT CHANNELIZING DEVICES ARE MAINTAINED AND KEPT CLEAN, VISIBLE AND PROPERLY POSITIONED AT ALL TIMES. DEVICES SHALL BE REPLACED THAT ARE DAMAGED AND HAVE LOST A SIGNIFICANT AMOUNT OF THEIR RETROREFLECTIVITY AND EFFECTIVENESS.

CONES

CONES SHALL PREDOMINANTLY BE ORANGE, FLUORESCENT RED-ORANGE, OR FLUORESCENT YELLOW-ORANGE IN COLOR, NOT LESS THAN 70 mm (28") IN HEIGHT, AND SHALL BE MADE OF A MATERIAL THAT CAN BE STRUCK WITHOUT DAMAGING VEHICLES ON IMPACT, FOR NIGHT TIME USE, CONES SHALL BE RETOREFLECTIVE OR EQUIPPED WITH LIGHTING DEVICES FOR MAXIMUM VISIBILITY. RETROREFLECTION OF CONES SHALL BE PROVIDED BY A WHITE BOND 150 mm (6") WIDE. NO MORE THAN 75 TO 100 mm (3 TO 4") FROM THE TOP OF THE CONE, AND AN ADDITIONAL 100 mm (4") WHITE BAND A MINIMUM OF 50 mm (2") BELOW THE 150 mm (6") BAND. TRAFFIC CONES ARE NORMALLY USED FOR SHORT-TERM STATIONARY AND SHORT DURATION WORK. HOWEVER, CONES MAY BE USED FOR INTERMEDIATE-TERM STATIONARY WORK AT NIGHT, IF THE SITE IS CONTINUOUSLY MANNED.

TUBULAR MARKERS

TUBULAR MARKERS SHALL PREDOMINANTLY BE ORANGE IN COLOR, NOT LESS THAN 700 mm (28") IN HEIGHT . A MINIMUM 50 mm (2") WIDE WHEN FACING TRAFFIC AND MADE OF A MATERIAL THAT CAN BE STRUCK WITHOUT DAMAGING VEHICLES. FOR NIGHT TIME USE, TUBULAR MARKERS SHALL BE RETROREFLECTIVE PROVIDED BY TWO (2) 75 mm (3") WIDE WHITE BANDS PLACED A MAXIMUM OF 50 mm (2") FROM THE TOP, WITH A MAXIMUM OF 150 mm (6") BETWEEN BANDS. TUBULAR MARKERS ARE NORMALLY USED FOR SHORT-TERM STATIONARY AND SHORT DURATION WORK, HOWEVER, TUBULAR MARKERS MAY BE USED FOR INTERMEDIATE-TERM STATIONARY WORK AT NIGHT, IF THE SITE IS CONTINUOUSLY MANNED.

VERTICAL PANELS

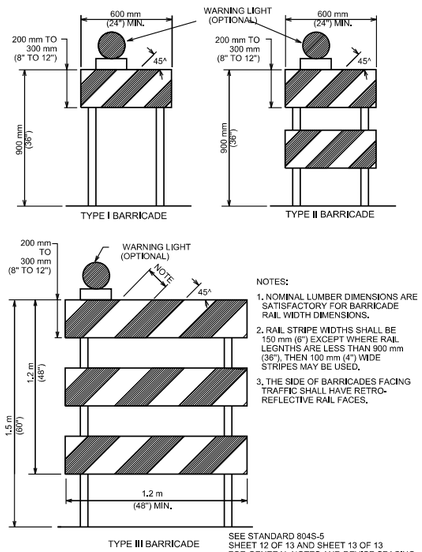
VERTICAL PANELS SHALL BE 200 TO 300 mm (8 TO 12") WIDE AND AT LEAST 600 mm (24") IN HEIGHT, THEY SHALL HAVE ORANGE AND WHITE STRIPES, AND BE RETROREFLECTIVE. PANEL STRIPE WIDTHS SHALL BE 150 mm (6") EXCEPT WHERE PANEL HEIGHTS ARE LESS THAN 900 mm (36"), WHEN 100 mm (4") STRIPES MAY BE USED. IF USED FOR TWO-WAY TRAFFIC, BACK-TO-BACK PANELS SHALL BE USED.

DRUMS

1. DRUMS USED FOR TRAFFIC WARNING OR CHANNELIZATION SHALL BE CONSTRUCTED OF LIGHT-WEIGHT FLEXIBLE AND DEFORMABLE MATERIALS AND BE A MINIMUM OF 900 mm (36") IN HEIGHT, AND HAVE AT LEAST 450 mm (18") MINIMUM WIDTH, REGARDLESS OF ORIENTATION. STEEL DRUMS SHALL NOT BE USED. THE MARKINGS ON DRUMS SHALL BE HORIZONTAL CIRCUMFERENTIAL, ALTERNATING ORANGE AND WHITE RETROREFLECTIVE STRIPES 100 TO 200 mm (4 TO 8") WIDE. EACH DRUM SHALL HAVE A MINIMUM OF TWO (2) ORANGE AND TWO (2) WHITE STRIPES. ANY NON-RETROREFLECTIVE SPACES BETWEEN THE HORIZONTAL ORANGE AND WHITE STRIPES, SHALL NOT EXCEED 50 mm (2") WIDE. DRUMS SHALL HAVE CLOSED TOPS THAT WILL NOT ALLOW COLLECTION OF ROADWORK OR OTHER DEBRIS.

2. DRUMS SHOULD NOT BE WEIGHTED WITH SAND, WATER OR ANY MATERIAL TO AN EXTENT THAT WOULD MAKE THE HAZARDOUS TO MOTORISTS, PEDESTRIANS OR WORKERS. WHEN THEY ARE USED IN REGIONS SUSCEPTIBLE TO FREEZING, THEY SHOULD HAVE DRAINAGE HOLES IN THE BOTTOM SO WATER WILL NOT ACCUMULATE AND FREEZE CAUSING A HAZARD IF STRUCK BY A MOTORIST. BALLAST SHALL NOT BE PLACED ON TOP OF THE DRUM.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		CHANNELIZING DEVICES	
RECORD COPY SIGNED BY SAM ANGOORI	*01/04/10* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 804S-5 2 OF 13



NOTES:

1. NOMINAL LUMBER DIMENSIONS ARE SATISFACTORY FOR BARRICADE RAIL WIDTH DIMENSIONS.
2. RAIL STRIPE WIDTHS SHALL BE 150 mm (6") EXCEPT WHERE RAIL LEGNTHS ARE LESS THAN 900 mm (36"), THEN 100 mm (4") WIDE STRIPES MAY BE USED.
3. THE SIDE OF BARRICADES FACING TRAFFIC SHALL HAVE RETRO-REFLECTIVE RAIL FACES.

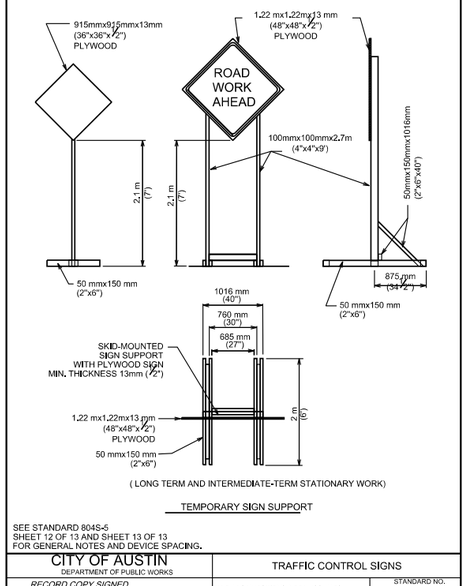
SEE STANDARD 804S-5
SHEET 12 OF 13 AND SHEET 13 OF 13
FOR GENERAL NOTES AND DEVICE SPACING.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		BARRICADES	
RECORD COPY SIGNED BY SAM ANGOORI	*01/04/10* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 804S-5 3 OF 13

BARRICADES

1. BARRICADES SHALL BE OF THREE TYPES; TYPE I, TYPE II OR TYPE III.
2. STRIPES ON BARRICADE RAILS SHALL BE ALTERNATING ORANGE AND WHITE RETRO-REFLECTIVE STRIPES (SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION TRAFFIC IS TO PASS). THE STRIPES SHALL BE 150 mm (6") WIDE, EXCEPT WHERE RAIL LENGTHS ARE LESS THAN 900 mm (36"), WHEN 100 mm (4") WIDE STRIPES MAY BE USED.
3. WHERE A BARRICADE EXTENDS ENTIRELY ACROSS A ROADWAY, THE SURFACE STRIPES SHOULD SLOPE DOWNWARD IN THE DIRECTION TOWARD WHICH TRAFFIC MUST TURN. WHERE BOTH RIGHT AND LEFT TURNS ARE PROVIDED, THE STRIPES MAY SLOPE DOWN-WARD IN BOTH DIRECTIONS FROM THE CENTER OF THE BARRICADE OR BARRICADES. WHERE NO TURNS ARE INTENDED, THE STRIPES SHOULD SLOPE DOWNWARD TOWARD THE CENTER OF THE BARRICADE OR BARRICADES.
4. BARRICADE RAILS SHOULD BE SUPPORTED IN A MANNER THAT WILL ALLOW THEM TO BE SEEN BY THE MOTORIST AND PROVIDE A STABLE SUPPORT NOT EASILY BLOWN OVER BY THE WIND OR TRAFFIC. FOR TYPE I BARRICADES, THE SUPPORT MAY INCLUDE OTHER UNSTRIPED HORIZONTAL PANELS NECESSARY TO PROVIDE STABILITY.
5. BARRICADES ARE LOCATED ADJACENT TO TRAFFIC AND ARE THEREFORE SUBJECT TO IMPACT WITH ERRANT VEHICLES. BECAUSE OF THEIR VULNERABLE POSITION AND THE HAZARD THEY COULD CREATE, THEY SHOULD BE CONSTRUCTED OF LIGHTWEIGHT MATERIALS AND HAVE NO RIGID STAY BRACING FOR A-FRAME DESIGNS. ALL BARRICADE SYSTEMS SHOULD BE CRASHWORTHY.
6. ON HIGH-SPEED EXPRESSWAYS OR IN OTHER SITUATION WHERE BARRICADES MAY BE SUSCEPTIBLE TO OVERTURING IN THE WIND, SANDBAGS SHOULD BE USED FOR BALLASTING. SANDBAGS MAY BE PLACED ON PARTS OF THE FRAME OR STAYS TO PROVIDE THE REQUIRED BALLAST BUT SHALL NOT BE PLACED ON TOP OF ANY STRIPED RAIL. BARRICADES SHALL NOT BE BALLASTED BY HEAVY OBJECTS SUCH AS ROCKS OR CHUNKS OF CONCRETE.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		BARRICADES	
RECORD COPY SIGNED BY SAM ANGOORI	*01/04/10* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 804S-5 4 OF 13

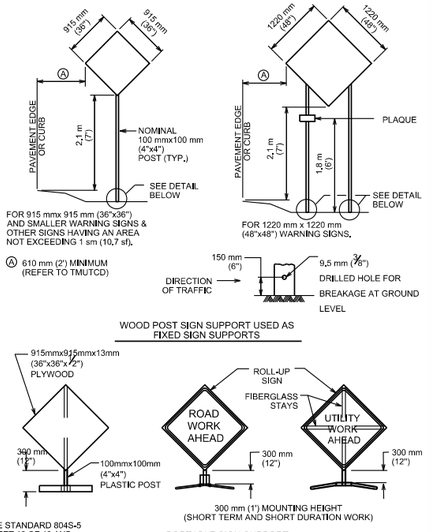


(LONG TERM AND INTERMEDIATE-TERM STATIONARY WORK)

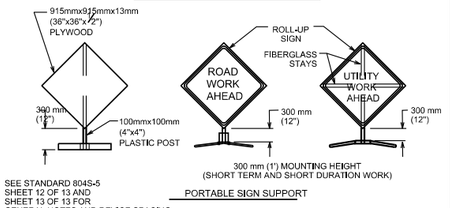
TEMPORARY SIGN SUPPORT

SEE STANDARD 804S-5
SHEET 12 OF 13 AND SHEET 13 OF 13
FOR GENERAL NOTES AND DEVICE SPACING.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		TRAFFIC CONTROL SIGNS	
RECORD COPY SIGNED BY SAM ANGOORI	*01/04/10* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 804S-5 5 OF 13



WOOD POST SIGN SUPPORT USED AS FIXED SIGN SUPPORTS



PORTABLE SIGN SUPPORT

SEE STANDARD 804S-5
SHEET 12 OF 13 AND
SHEET 13 OF 13 FOR
GENERAL NOTES AND DEVICE SPACING.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		TRAFFIC CONTROL SIGNS	
RECORD COPY SIGNED BY SAM ANGOORI	*01/04/10* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 804S-5 6 OF 13

1. WARNING SIGNS SHALL BE ORANGE, FLUORESCENT RED-ORANGE OR FLUORESCENT YELLOW-ORANGE IN COLOR. THE FLUORESCENT VERSIONS OF ORANGE PROVIDE HIGHER CONSPICUITY THAN STANDARD ORANGE, ESPECIALLY DURING TWILGHT. ALL SIGNS USED AT NIGHT SHALL BE EITHER RETRORE-FLECTIVE, WITH A MATERIAL THAT HAS A SMOOTH, SEALED OUTER SURFACE, OR ILLUMINATED TO SHOW SIMILAR SHAPE AND COLOR BOTH DAY AND NIGHT. SIGN ILLUMINATION MAY BE EITHER IN-TERNAL OR EXTERNAL. ROADWAY LIGHTING DOES NOT MEET THE REQUIREMENTS FOR SIGN ILLUMINATION.
2. TYPE A FLASHING WARNING LIGHTS MAY BE USED IN CONJUNCTION WITH SIGNS AT NIGHT. STANDARD ORANGE FLAGS MAY BE USED FOR DAY TIME OPERATIONS. HOWEVER, NEITHER LIGHTS NOR FLAGS MAY BLOCK THE SIGN LEGEND.
3. SIGNS SHOULD BE LOCATED ON THE RIGHT-HAND SIDE OF THE ROADWAY. WHEN SPECIAL EMPHASIS IS NEEDED, SIGNS MAY BE PLACE ON BOTH THE LEFT AND RIGHT SIDES OF ROADWAY. SIGNS SHALL BE PLACED ON BOTH THE LEFT AND RIGHT SIDES OF ONE-WAY OR DIVIDED ROADWAYS. SIGNS USED FOR LONG-TERM STATIONARY AND INTERMEDIATE-TERM STATIONARY WORK SHALL BE MOUNTED AT A HEIGHT OF AT LEAST 2,1 m (7'), MEASURED FROM THE BOTTOM OF THE SIGN. THE HEIGHT TO THE BOTTOM OF A SECONDARY SIGN MOUNTED BELOW ANOTHER SIGN MAY BE 0,3 m (1') LESS THAN THE APPROPRIATE HEIGHT ABOVE.
4. SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, MOBILE CON-DITIONS AND EMERGENCIES. SIGNS MOUNTED ON PORTABLE SUPPORTS SHALL BE AT A HEIGHT OF AT LEAST 0,3 m (1'), MEASURED FROM THE BOTTOM OF THE SIGN.
5. ALL SIGN SYSTEMS SHOULD BE CRASHWORTHY, NO SIGN MOUNTS SHALL BLOCK OR IMPEDE SIDEALKS UNLESS NO OTHER OPTION IS AVAILABLE. ONLY SANDBAGS SHOULD BE USED FOR BALLASTING SIGN MOUNTS.

TABLE V-3 TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING

Roadway Classi-fication	Posted Speed	Sign Spacing ★	Long-term Stationary Or Intermediate-term Stationary Approaching Warning Signs CW20 Series And CW23-1 Sign		Short-term Stationary Or Short Duration Approach Warning Signs CW22 Series		Other Warning Signs
			Standard	Minimum[1]	Standard	Minimum[1]	Standard
Conven.	KPH (MPH)	meter (feet)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)
	50 (30)	40 (120)	1220x1220 (48x48)	915x915 (36x36)			
	55 (35)	50 (180)			915x915 (36x36)		915x915 (36x36)
	65 (40)	75 (240)					
	70 (45)	100 (320)		Use Standard Size		Use Standard Size	
	80 (50)	120 (400)					
	90 (55)	150 (500) 2					
	100 (60)	180 (600) 2			1220x1220 (48x48)		1220x1220 (48x48)
	105 (65)	210 (700) 2					
	115 (70)	240 (800) 2					
Exp. or hwy	★★	★★ 3	↓	↓	★★★	★★★	★★★

★ MINIMUM DISTANCE FROM WORK TO 1st ADVANCE WARNING SIGN AND/OR DISTANCE BETWEEN EACH ADDITIONAL SIGN.
★★ FOR TYPICAL SIGN SPACINGS ON EXPRESSWAYS AND FREEWAYS, REFER TO THE CURRENT ADDITION OF TMUTCD.
★★★ SMALLER SIGN SIZES MAY BE USED WHERE SIGN DESIGNS HAVE NOT BEEN INCLUDED IN THE "STANDARD HIGHWAY SIGNS DESIGN MANUAL".

1. SPECIAL OR LARGER SIZE SIGNS MAY BE USED AS NECESSARY.
2. DISTANCE BETWEEN SIGNS SHOULD BE INCREASED AS REQUIRED TO HAVE 450 m (1500') OR MORE ADVANCE WARNING.
3. DISTANCE BETWEEN SIGNS SHOULD BE INCREASED AS REQUIRED TO HAVE A 0,8 km (½ MILE) OR MORE ADVANCE WARNING.
4. FOR USE ONLY ON SECONDARY ROADS OR CITY STREETS WHERE SPEEDS ARE LOW.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		TRAFFIC CONTROL SIGNS	
RECORD COPY SIGNED BY SAM ANGOORI	*01/04/10* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 804S-5 7 OF 13

1. ALL TRAFFIC CONTROL DEVICES, SIGNS, BARRICADES AND WARNING SIGNS SHALL BE FURNISHED, PLACED, CONSTRUCTED AND MAINTAINED IN THE APPROPRIATE TYPES AND SIZES AND FLAGGER OPERATIONS EXECUTED IN ACCORDANCE WITH THE CURRENT EDITION OF THE TEXAS MANUAL ON UNIFORM CONTROL DEVICES (TMUTCD), THE CITY OF AUSTIN STANDARD SPECIFICATIONS SERIES 800 AND THE CITY OF AUSTIN TRANS-PORTATION CRITERIA MANUAL, OR AS DIRECTED BY THE ENGINEER OR DESIGNATED RE-PRESENTATIVE. IF A CONFLICT ARISES THEN THE CITY OF AUSTIN TRANSPORTATION CRITERIA MANUAL SHALL CONTROL UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER OR DESIGNATED REPRESENTATIVE.
2. THE CONTRACTOR SHALL NOTIFY THE TRANSPORTATION DIVISION OF THE DEPARTMENT OF PUBLIC WORKS AT 974-7024 NO LATER THAN THE MONDAY OF THE WEEK DURING WHICH THE CONTRACTOR INTENDS TO SET UP BARRICADES TO START CONSTRUCTION.
3. PROPOSED CONSTRUCTION TRAFFIC MOVEMENTS MAY REQUIRE EXISTING SIGNAL HEADS TO BE RELOCATED. THE CITY OF AUSTIN WILL REVIEW SIGNAL HEAD LOCATIONS DURING CONSTRUCTION AND PERFORM THE REQUIRED ADJUSTMENTS. THE CONTRACTOR SHALL CONTACT THE TRANSPORTATION DIVISION OF THE DEPARTMENT OF PUBLIC WORKS AT 974-7024, THREE (3) DAYS PRIOR TO PLACMENT ANY TRAFFIC CONTROLS WHICH MAY REQUIRE SIGNAL HEAD ADJUSTMENTS/RELOCATION.
4. THE CONTRACTOR SHALL PROVIDE ONE (1) FULL-TIME OFF-DUTY, UNIFORMED AUSTIN POLICE DEPARTMENT CERTIFIED PEACE OFFICER AND ONE (1) VEHICLE OF THE TYPE APPROVED BY THE ENGINEER OR DESIGNATED REPRESENTATIVE FOR TEMPORARY LANE CLOSURES WHEN UNDERSEALING, MILLING, PAVING AND WHEN WORKING IN INTERSECTIONS AS PART OF THE TRAFFIC CONTROL OPERATIONS. THE PEACE OFFICER SHALL BE ABLE TO SHOW PROOF OF CERTIFICATION BY THE TEXAS COMMISSION ON LAW ENFORCEMENT OFFICER STANDARDS.
5. THE CONTRACTOR SHALL NOTIFY ALL OTHER GOVERNMENTAL AGENCIES WHOSE RIGHTS-OF-WAY ARE AFFECTED BY HIS WORK ACTIVITIES. THE CONTRACTOR SHALL PROVIDE ANY ADDITIONAL TRAFFIC CONTROL DEVICES THAT THEY MAY NEED.
6. THE CONTRACTOR SHALL MAINTAIN ONE (1) DUST-FREE LANE OF TRAFFIC IN EACH DIRECTION AT ALL TIMES, UNLESS OTHERWISE NOTED IN THE DRAWINGS OR APPROVED THE ENGINEER OR DESIGNATED REPRESENTATIVE.
7. THERE SHALL BE A MINIMUM OF THREE (3) METERS (10 FEET) CLEAR WIDTH FOR EACH LANE OF TRAFFIC IN CHANNELIZED AREAS, UNLESS OTHERWISE NOTED ON THE DRAWINGS OR APPROVED BY THE ENGINEER OR DESIGNATED REPRESENTATIVE.
8. THE CONTRACTOR SHALL MAINTAIN DRIVEWAY ACCESS AT ALL TIMES. IF ACCESS CANNOT BE MAINTAINED, THE CONTRACTOR WITH THE APPROVAL OF THE ENGINEER OR DESIGNATED REPRESENTATIVE SHALL PROVIDE AT LEAST 24 HOUR WRITTEN NOTICE OF LIMITED ACCESS TO AFFECTED PROPERTY OWNERS. THE CONTRACTOR SHALL PROVIDE BUSINESS ACCESS SIGNS AS NEEDED TO NFORM DRIVERS OF THE LOCATIONS OF ALL DRIVEWAYS.
9. TEMPORARY LANE CLOSURES IN THE CENTRAL BUSINESS DISTRICT (CBD) OR ON ARTERIAL STREETS SHALL NOT BE PERMITTED DURING THE HOURS OF 7 AM TO 9 AM AND 4 PM TO 6PM MONDAY THROUGH FRIDAY UNLESS PRIOR APPROVAL HAS BEEN OBTAINED FROM THE TRANSPORTATION DIVISION.
10. TRAFFIC CONTROL SHOWN ON STANDARD DETAILS IS TYPICAL. ADDITIONAL SIGNING AND/OR BARRICADING. AS WELL AS TEMPORARY PAVEMENT MARKINGS AND OBLITERATION/RESTORATION OF EXISTING PAVEMENT MARKINGS, MAY BE REQUIRED DEPENDING ON FIELD CONDITIONS. FIELD ADJUSTMENTS TO TRAFFIC CONTROLS WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE CONSIDERED SUBSIDIARY TO ITEM NO, 803S "BARRICADES, SIGNS AND TRAFFIC HANDLING".
11. THE CONTRACTOR SHALL DESIGNATE A COMPETENT PERSON FOR TRAFFIC CONTROL. THE COMPETENT PERSON SHALL MAKE INSPECTIONS OF THE TRAFFIC CONTROL DEVICES AT LEAST TWO (2) TIMES A DAY (ONCE AT THE BEGINNING OF THE DAY AND ONCE AT THE END OF THE DAY), INCLUDING NON-WORKING DAYS, ENSURING THAT ALL DEVICES ARE IN THEIR PROPER PLACE AND ARE IN WORKING ORDER.
12. ALL DEVICES SHALL BE MADE USING MATERIALS LISTED ON THE TxDOT APPROVED PRODUCTS LIST.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		GENERAL TRAFFIC CONTROL NOTES	
RECORD COPY SIGNED BY SAM ANGOORI	*01/04/10* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 804S-5 12 OF 13

REV. NO.	BY	DATE	REVISION DESCRIPTION

STATE OF TEXAS
DALE P. MURPHY
90614
LICENSED
PROFESSIONAL ENGINEER
11/04/2022

K FRIESE & ASSOCIATES, INC.
1120 S. CAPITAL OF TEXAS HWY, II-100, AUSTIN, TX 78746

CITY OF LEANDER
SAN GABRIEL EAST ELEVATED STORAGE TANK

TRAFFIC CONTROL DETAILS

K FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
FIRM #6535

CITY OF LEANDER

SCALE	
DATE	10/28/2022
SHEET NUMBER	C21 OF C21 21 OF 34

0749*TRAFFIC *CONTROL*DETAILS*03.dgn modified by dchiarescu on 10/28/2022 - 3:40:20 PM

RETAINING WALL TECHNICAL SPECIFICATIONS

THE FOLLOWING SPECIFICATIONS FROM THE TEXAS DEPARTMENT OF TRANSPORTATION -2014-STANDARD, SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES AS CURRENTLY AMENDED SHALL GOVERN THOSE PORTIONS OF THE WORK:

ITEM 110 - EXCAVATION

ITEM 132 - EMBANKMENT

ITEM 216 - PROOF ROLLING

ITEM 400 - EXCAVATION AND BACKFILL FOR STRUCTURES

ITEM 420 - CONCRETE SUBSTRUCTURES

ITEM 421 - HYDRAULIC CEMENT CONCRETE

ITEM 423 - RETAINING WALLS

ITEM 424 - PRECAST CONCRETE STRUCTURAL MEMBERS (FABRICATION)

ITEM 432 - RIPRAP

ITEM 440 - REINFORCEMENT FOR CONCRETE

ITEM 445 - GALVANIZING

ITEM 458 - WATERPROOFING FOR MEMBRANES FOR STRUCTURES

ITEM 556 - PIPE UNDERDRAINS

A COMPLETE COPY OF THE TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES CAN BE DOWNLOADED FROM ftp://ftp.dot.state.tx.us/pub/txdot-info/des/spec-book-1114.pdf OR PURCHASED AT ANY TXDOT DISTRICT OFFICE.

AESTHETIC NOTES:

EXPOSED COPING AND PANEL SURFACES SHALL BE PAINTED WITH FEDERAL STANDARD 595B COLOR NO. 33522 (TAN) OR EQUIVALENT COLOR. ALL PAINT AND FINISHES SHALL BE CONSIDERED SUBSIDIARY TO ITEM 423, "RETAINING WALLS."

PROVIDE "FORM LINER FINISH" FOR PANELS AND CONCRETE PAINT OR OPAQUE SEALANT IN ACCORDANCE WITH TXDOT ITEM 427, "SURFACE FINISHES FOR CONCRETE." ALL OTHER VISIBLE RETAINING WALL SURFACES SHALL RECEIVE A SMOOTH FINISH.

ELASTOMERIC FORM LINER FOR PANELS SHALL RECEIVE AN ASHLAR STONE FINISH OR EQUIVALENT THAT WILL BE CONSIDERED SUBSIDIARY TO ITEM 423, "RETAINING WALLS."

THE CONTRACTOR SHALL CONSTRUCT UP TO TWO (2) MOCK-UP PANELS FOR ENGINEER'S APPROVAL A MINIMUM OF THIRTY (30) DAYS PRIOR TO COMMENCEMENT OF STRUCTURE CONSTRUCTION AT CONTRACTOR'S EXPENSE.

GENERAL NOTES:

THE TERM "ENGINEER" REFERS TO THE AUTHORIZED OWNER REPRESENTATIVE.

REFERENCES TO MANUFACTURER'S TRADE NAME OR CATALOG NUMBERS ARE FOR THE PURPOSE OF IDENTIFICATION ONLY. SIMILAR MATERIALS FROM OTHER MANUFACTURERS ARE PERMITTED IF THEY ARE OF EQUAL QUALITY, COMPLY WITH THE SPECIFICATIONS FOR THIS PROJECT, AND ARE APPROVED.

CLEARLY MARK OR HIGHLIGHT ON THE SHOP DRAWINGS, THE ITEMS BEING FURNISHED FOR THIS PROJECT. SUBMIT REQUIRED SHOP DRAWINGS IN ACCORDANCE WITH THE SHOP DRAWING DISTRIBUTION LIST SHOWN IN TABLE 1.

TABLE 1

2014 CONSTRUCTION SPECIFICATION REQUIRED SHOP DRAWING SUBMITTALS				
SPEC ITEM NO.'S	PRODUCT	SUBMITTAL REQUIRED	APPROVAL REQUIRED (Y/N)	CONTRACTOR/ FABRICATOR P.E. SEAL REQUIRED
423	RETAINING WALLS, COPING, ANY ANCILLARY COMPONENTS, (CALCS REQ'D) FOR MSE	YES	YES	YES

REV. NO.	BY	DATE	REVISION DESCRIPTION

AGUIRRE & FIELDS
7215 NEW TERRITORY BLVD., STE. 100, SUGAR LAND, TX 77479

CITY OF LEANDER
SAN GABRIEL EAST PUMP STATION

RETAINING WALL TECHNICAL SPECIFICATIONS

AGUIRRE & FIELDS
ENGINEERING INNOVATORS
TBPE FIRM REGISTRATION # 739

STATE OF TEXAS
MACK DAVIS
119955
LICENSED
PROFESSIONAL ENGINEER
Mack Davis 11/9/21

CITY OF LEANDER

SCALE	
DATE	11/9/2021
SHEET NUMBER	RW1 OF RW6 22 OF 34

11/9/2021
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EAST RETAINING WALL ALIGNMENT

BEGINNING CHAIN ERWALI DESCRIPTION
DESCRIPTION: EAST RETAINING WALL ALIGNMENT

POINT ERO1 N 10,193,985.5726 E 3,087,772.2486 STA 9+00.00

COURSE FROM ERO1 TO PC ERWALI1 S 3° 33′ 46.9711" W DIST 245.2855

		CURVE DATA *----------*				
CURVE ERWALI1						
P.I. STATION		11+64.41	N	10,193,721.6713	E	3,087,755.8162
DELTA	= 41° 52′ 02.4061"	(RT)				
DEGREE	= 114° 35′ 29.6125"					
TANGENT	= 19.1268					
LENGTH	= 36.5361					
RADIUS	= 50.0000					
EXTERNAL	= 3.5335					
LONG CHORD	= 35.7287					
MID. ORD.	= 3.3003					
P.C. STATION		11+45.29	N	10,193,740.7612	E	3,087,757.0048
P.T. STATION		11+81.82	N	10,193,708.2486	E	3,087,742.1903
C.C.			N	10,193,743.8685	E	3,087,707.1015
BACK	= S 3° 33′ 46.9712" W					
AHEAD	= S 45° 25′ 49.3773" W					
CHORD BEAR	= S 24° 29′ 48.1742" W					

ENDING CHAIN ERWALI DESCRIPTION

REV. NO.	BY	DATE	REVISION DESCRIPTION

AGUIRRE & FIELDS
7215 NEW TERRITORY BLVD., STE. 100, SUGAR LAND, TX 77479

CITY OF LEANDER
SAN GABRIEL EAST PUMP STATION
RETAINING WALL ALIGNMENT DATA

AGUIRRE & FIELDS
ENGINEERING INNOVATORS
TBPE FIRM REGISTRATION # 739

STATE OF TEXAS
MACK DAVIS
119955
LICENSED
PROFESSIONAL ENGINEER
Mack Davis 11/9/21

CITY OF LEANDER

SCALE	
DATE	11/9/2021
SHEET NUMBER	RW2 OF RW6 23 OF 24

11/9/2021
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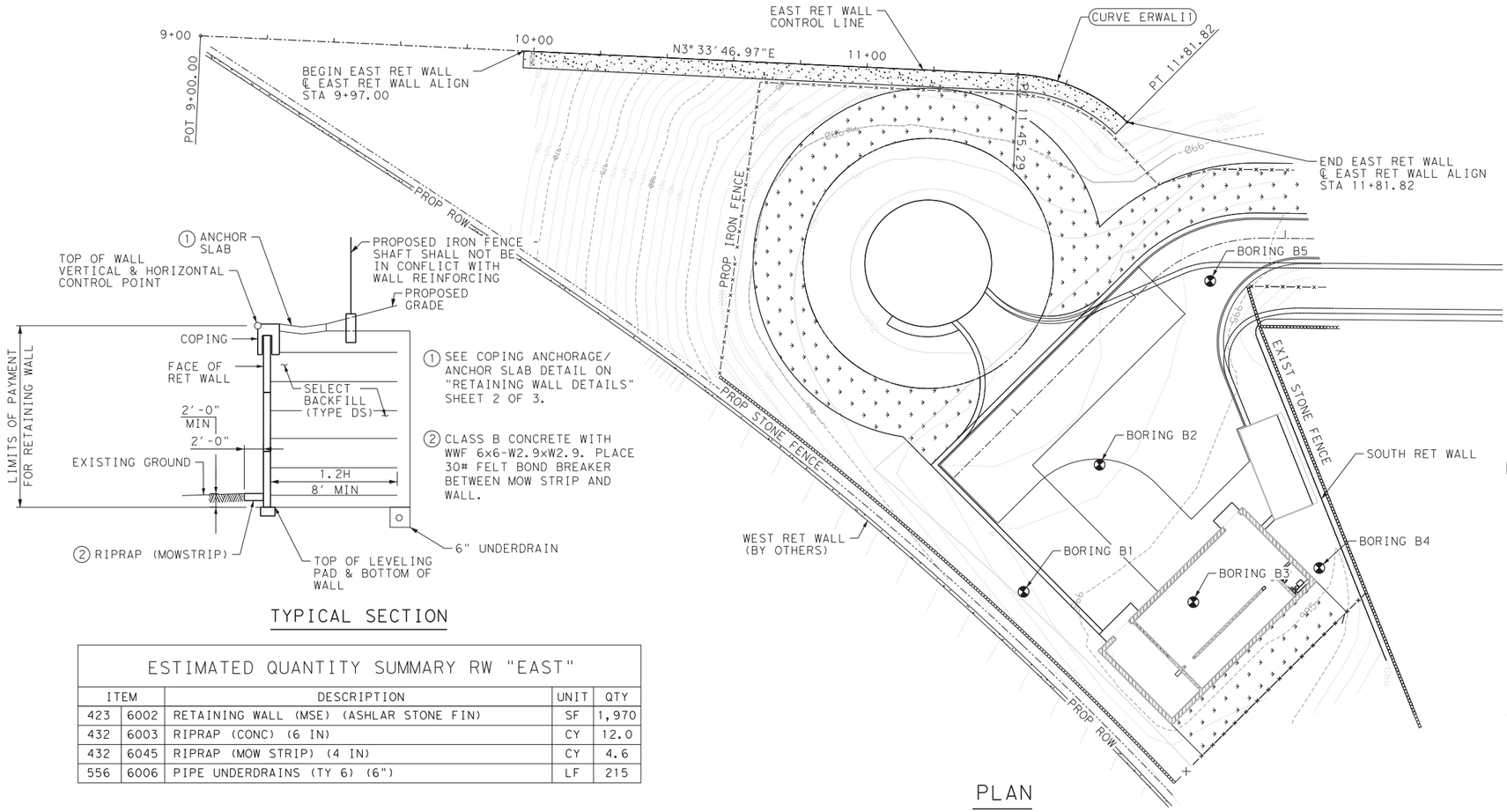
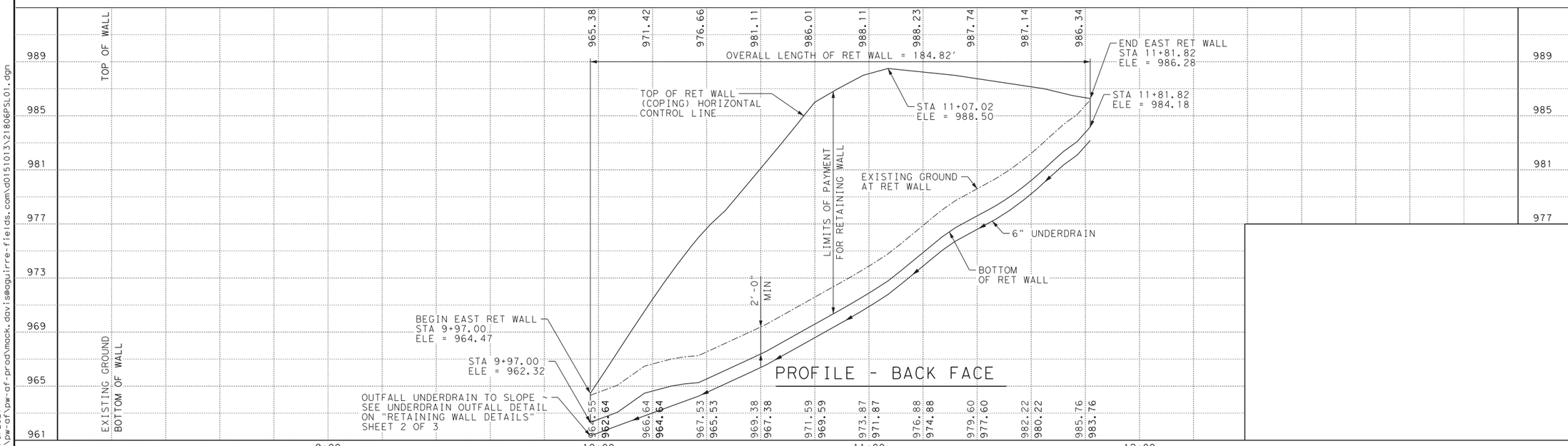
TYPICAL SECTION

ESTIMATED QUANTITY SUMMARY RW "EAST"				
ITEM		DESCRIPTION	UNIT	QTY
423	6002	RETAINING WALL (MSE) (ASHLAR STONE FIN)	SF	1,970
432	6003	RIPRAP (CONC) (6 IN)	CY	12.0
432	6045	RIPRAP (MOW STRIP) (4 IN)	CY	4.6
556	6006	PIPE UNDERDRAINS (TY 6) (6")	LF	215



PLAN



PROFILE - BACK FACE

NOTES:

1. SEE SHEET RW6 FOR DETAILS AND LIMITS OF REINFORCED VOLUME.
2. RETAINING WALL CONTROL POINT IS LOCATED AT THE TOP OF THE EXPOSED FACE OF COPING.
3. CONTRACTOR SHALL FIELD VERIFY LOCATION OF ALL UTILITIES.
4. ADJUST MSE STRAPS AS NECESSARY TO AVOID CONFLICTS WITH ALL UNDERGROUND STRUCTURES.
5. FOR HORIZONTAL CURVE DATA, SEE "RETAINING WALL ALIGNMENT DATA" SHEET RW2.
6. QUANTITIES ARE FOR CONTRACTOR'S INFORMATION ONLY.
7. SEE AESTHETIC NOTES ON "RETAINING WALL TECHNICAL SPECIFICATIONS" SHEET RW1 FOR COLOR, FINISH, FORMLINER AND MOCK-UP PANEL NOTES.

0 20 40
SCALE: 1" = 20' H
1" = 4' V

REV. NO.	BY	DATE	REVISION DESCRIPTION

AGUIRRE & FIELDS
7215 NEW TERRITORY BLVD., STE. 100, SUGAR LAND, TX 77479

CITY OF LEANDER
SAN GABRIEL EAST PUMP STATION
EAST RETAINING WALL
PLAN AND PROFILE

AGUIRRE & FIELDS
ENGINEERING INNOVATORS
TBPE FIRM REGISTRATION # 739

STATE OF TEXAS
MACK DAVIS
119955
LICENSED
PROFESSIONAL ENGINEER
Mack Davis 11/9/21

CITY OF LEANDER

SCALE	
DATE	11/9/2021
SHEET NUMBER	RW3 OF RW6 24 OF 34

11/9/2021
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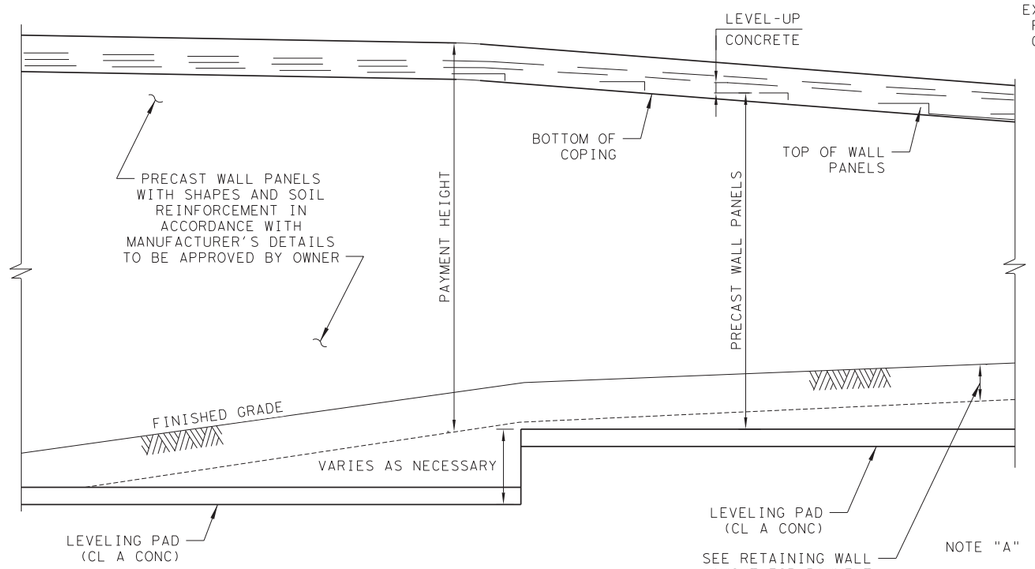
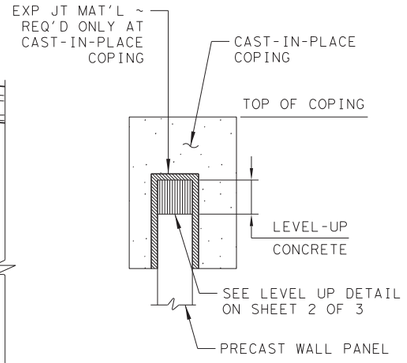
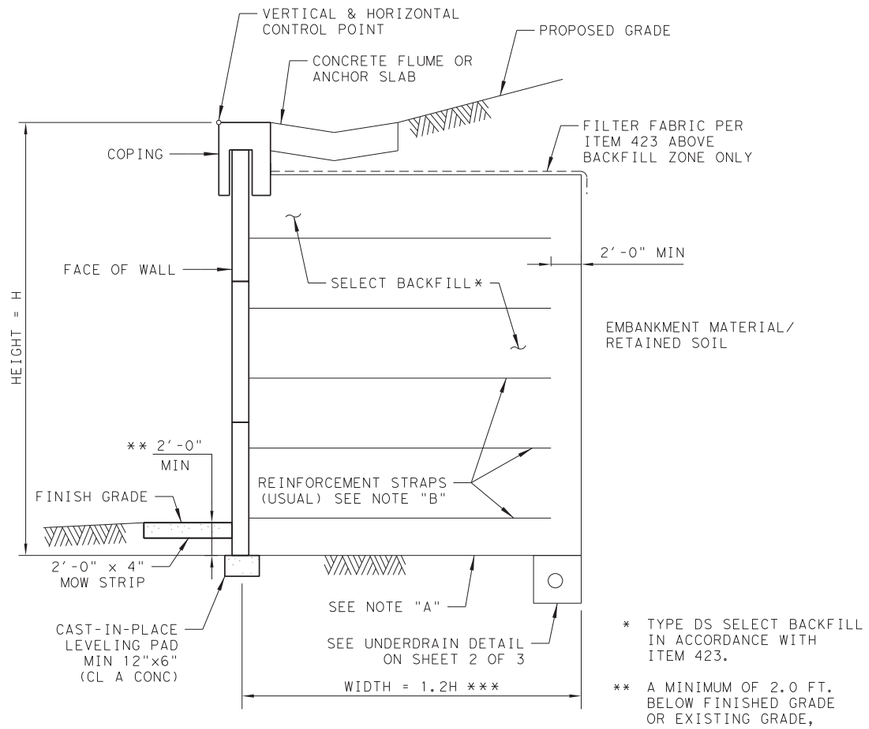
NOTE: LEVEL-UP CONCRETE AND EXPANSION JOINT MATERIAL SHALL BE INCLUDED IN THE COST OF THE RETAINING WALL



ELEVATION



SECTION AT TOP OF WALL



TYPICAL SECTION

* TYPE DS SELECT BACKFILL IN ACCORDANCE WITH ITEM 423.

** A MINIMUM OF 2.0 FT. BELOW FINISHED GRADE OR EXISTING GRADE, SEE WALL LAYOUT.

*** WIDTH IS 1.2H BUT NOT LESS THAN EIGHT FEET.

NOTE "A"

COMPACT THE SOIL UNDER THE LEVELING PAD AND THE REINFORCED VOLUME INCLUDING A MINIMUM OF TWO (2) FEET IN FRONT OF THE LEVELING PAD TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY, AS PRESENTED IN TEST METHOD TEX-114-E. THE DENSITY TESTING OF THE SOIL WILL BE OUTLINED IN TEST METHOD TEX-115-E. COST OF THIS COMPACTION WILL NOT BE PAID FOR DIRECTLY BUT IS INCIDENTAL TO THE UNIT PRICE BID FOR BID FOR "RETAINING WALL".

NOTE "B"

WHEN BACKFILL DOES NOT COMPLY WITH pH AND RESISTIVITY REQUIREMENTS, USE EPOXY COATED METALLIC REINFORCEMENTS. ALSO EPOXY COAT CONNECTION HARDWARE TO BE USED WITH EPOXY COATED REINFORCEMENTS.

DESIGN PARAMETERS

RETAINING WALL DESIGN BASED ON THE FOLLOWING DESIGN PARAMETERS:

SELECT FILL:	UNIT WT = 110 PCF	Ø = 34°	C = 0 PSF
RETAINED SOIL:	UNIT WT = 125 PCF	Ø = 24°	C = 0 PSF
FOUNDATION SOIL:	UNIT WT = 125 PCF	Ø = 22°	C = 0 PSF

ALLOWABLE STRESSES IN STEEL AND CONCRETE ARE IN ACCORDANCE WITH CURRENT AASHTO AND INTERIM SPECIFICATIONS.

PROVIDE A FACTOR OF SAFETY IN SLIDING ALONG THE BASE OF THE STRUCTURE OF GREATER THAN OR EQUAL TO 1.5.

PROVIDE A FACTOR OF SAFETY IN OVERTURNING OF GREATER THAN OR EQUAL TO 2.0.

THE MAXIMUM ALLOWABLE BEARING PRESSURE IS ½ THE ULTIMATE BEARING CAPACITY OF THE FOUNDATION.

THE BASE PRESSURE RESULTANT SHALL FALL WITHIN THE MIDDLE THIRD OF THE RETAINING WALL.

PROVIDE A FACTOR OF SAFETY AGAINST THE PULLOUT OF THE EARTH REINFORCEMENTS OF GREATER THAN OR EQUAL TO 1.5 AT EACH LEVEL. DETERMINE PULLOUT RESISTANCE FROM TEST DATA EVALUATED AT ¾" STRAIN.

CORROSION CRITERIA

THE EARTH REINFORCEMENT ELEMENTS SHALL BE DESIGNED TO HAVE A MINIMUM DESIGN LIFE OF 75 YEARS, USING CURRENT AASHTO CORROSION RATES.

STRESS CALCULATIONS (RUPTURE) SHALL BE DONE ON THE CALCULATED EARTH REINFORCEMENT SECTION REMAINING AFTER 75 YEARS. PULLOUT CALCULATIONS MAY BE BASED ON NON-CORRODED SECTION.

NOTES

THE SELECT BACKFILL SPECIFIED FOR USE WITHIN THE MECHANICALLY STABILIZED EARTH VOLUME SHALL EXTEND HORIZONTALLY FROM THE BACK OF THE PANELS TO A MINIMUM 2' BEYOND THE END OF THE EARTH REINFORCEMENTS. THE SELECT BACKFILL SHALL EXTEND VERTICALLY FROM THE TOP OF THE LEVELING PAD OR 4" BELOW THE LOWEST EARTH REINFORCEMENT, WHICHEVER IS LOWER, TO THE TOP OF PANELS.

PLACE THE UPPERMOST REINFORCEMENT STRAPS NO MORE THAN 3.0' BELOW THE TOP OF THE WALL. PLACE THE LOWEST LEVEL OF REINFORCEMENT STRAPS NO MORE THAN 2.0' ABOVE THE TOP OF THE LEVELING PAD.

STANDARD PRECAST CONCRETE PANELS SHALL HAVE A MAXIMUM HEIGHT OF 6', AND A MAXIMUM SURFACE AREA OF 50 SQ FT. TOP AND BOTTOM PANELS MAY EXCEED THESE LIMITATIONS AS NECESSARY TO ACHIEVE REQUIRED WALL GRADES. MAXIMUM HEIGHT OF ANY PANEL SHALL BE 7'-6". MINIMUM PANEL THICKNESS SHALL BE 5". PANELS SHALL BE ARRANGED TO PROVIDE OFFSET HORIZONTAL JOINTS.

AN OPEN JOINT SHALL BE PROVIDED AROUND THE PERIMETER OF THE CONCRETE PANELS. THE JOINT CONFIGURATION SHALL BE SUCH THAT 1) THE FILTER FABRIC AND/OR PAD MATERIALS ARE NOT EXPOSED AT THE WALL FACE AND 2) THE DESIGN OPENING IS BETWEEN ⅜" AND ¾".

A ONE-PIECE CORNER PANEL SHALL BE PROVIDED FOR WALL ANGLE CHANGES OF GREATER THAN 30°. BUTTING OF CHAMFERED PANELS WILL BE ALLOWED FOR ANGLE CHANGES OF 30° OR LESS.

CONCRETE COPING SHALL BE PROVIDED ALONG THE TOP OF WALL. THE JOINTS BETWEEN ALL COPING SEGMENTS SHALL BE SEALED TO PREVENT INFILTRATION OF WATER INTO THE RETAINING WALL BACKFILL. SEALING SHALL BE IN ACCORDANCE WITH THE DMS-6310 "JOINT SEALANTS AND FILLERS", USING CLASS 4 JOINT SEALANT.

WHEN OBSTRUCTIONS (INLETS, DRILLED SHAFTS, PILING, ETC) PREVENT PLACEMENT OF SOIL REINFORCEMENTS IN THEIR NORMAL LOCATIONS. PROVIDE DETAILS AND CALCULATIONS THAT ESTABLISH SUPPORT FOR THE AFFECTED PANELS. FURNISH THE SAME STEEL AREA OF SOIL REINFORCEMENTS AS THAT REQUIRED IN THE ABSENCE OF THE OBSTRUCTION. PROVIDE CALCULATIONS THAT JUSTIFY ANY ALTERATIONS MADE TO THE SOIL REINFORCEMENTS OR MODIFICATIONS TO THEIR NORMAL PLACEMENT. DO NOT USE PANELS WITHOUT ANY SOIL REINFORCEMENTS CONNECTED TO THEM UNLESS THEY ARE CONNECTED WITH GALVANIZED HARDWARE TO ADJACENT PANELS WHICH DO HAVE SUPPORTING SOIL REINFORCEMENTS ATTACHED TO THEM AND AS APPROVED BY THE ENGINEER.

PROVIDE UNDERDRAINS ONLY AT LOCATIONS SHOWN ON THE PLANS INCLUDE THE COST OF FURNISHING AND INSTALLING UNDERDRAINS IN THE UNIT PRICE BID FOR "RETAINING WALL"

PAYMENT HEIGHT SHOWN IN RETAINING WALL LAYOUTS IS CONSIDERED THE MINIMUM HEIGHT TO BE FURNISHED. ADDITIONAL WALL FURNISHED BELOW PAYMENT LINE DUE TO DETAILING OR FABRICATOR DESIGN REQUIREMENTS WILL NOT BE PAID FOR DIRECTLY BUT SHALL BE CONSIDERED INCIDENTAL.

REV. NO.	BY	DATE	REVISION DESCRIPTION

AGUIRRE & FIELDS
7215 NEW TERRITORY BLVD., STE. 100, SUGAR LAND, TX 77479

CITY OF LEANDER
SAN GABRIEL EAST PUMP STATION

RETAINING WALL DETAILS 1 OF 3

AGUIRRE & FIELDS
ENGINEERING INNOVATORS
TBPE FIRM REGISTRATION # 739

STATE OF TEXAS
MACK DAVIS
119955
LICENSED
PROFESSIONAL ENGINEER
Mack Davis 11/9/21

CITY OF LEANDER

SCALE	
DATE	11/9/2021
SHEET NUMBER	RW4 OF RW6 25 OF 34

11/9/2021
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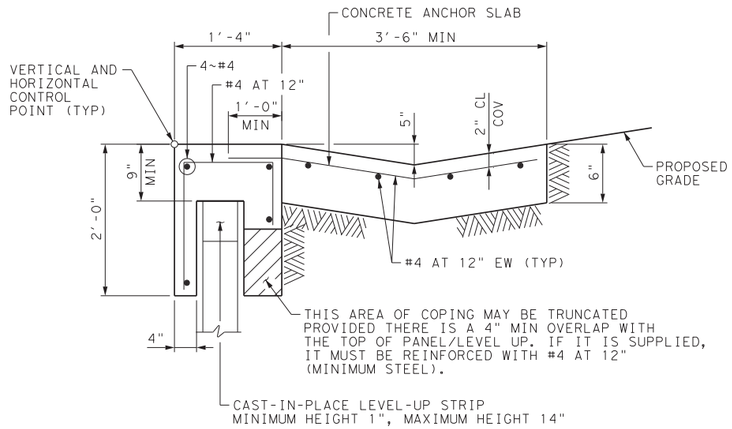


COPING ANCHORAGE/ANCHOR SLAB DETAIL

CAST-IN-PLACE COPINGS:

PROVIDE COMPRESSIBLE MATERIAL TO ISOLATE PRECAST PANEL FROM CAST-IN-PLACE COPING TO PREVENT CRACKING. ATTACH COMPRESSIBLE MATERIAL TO BOTH SIDES OF PRECAST PANEL PRIOR TO CASTING CONCRETE FOR COPING.

WHEN CAST-IN-PLACE COPING IS ATTACHED TO AN ANCHOR SLAB, A SMOOTH LEVEL-UP STRIP MUST BE PROVIDED ON THE TOP OF THE PRECAST PANELS. THE PURPOSE OF THE LEVEL-UP IS TO ALLOW THE ANCHOR SLAB AND COPING TO MOVE LONGITUDINALLY RELATIVE TO THE WALL WITHOUT CAUSING DAMAGE.

ALIGN COPING JOINTS WITH PRECAST PANEL JOINTS. PROVIDE EXPANSION JOINTS AT NO GREATER THAN 100' SPACING.

PRECAST COPINGS:

PROVIDE A SMOOTH LEVEL-UP STRIP ON TOP OF THE PRECAST PANELS PRIOR TO INSTALLATION OF THE COPING. SHIMS MAY BE USED ON TOP OF THE LEVEL-UP STRIP TO FACILITATE ALIGNMENT. TOTAL SHIM THICKNESS NOT TO EXCEED 1".

PROVIDE PRECAST COPING IN 10' MINIMUM LENGTHS.

GENERAL NOTES:

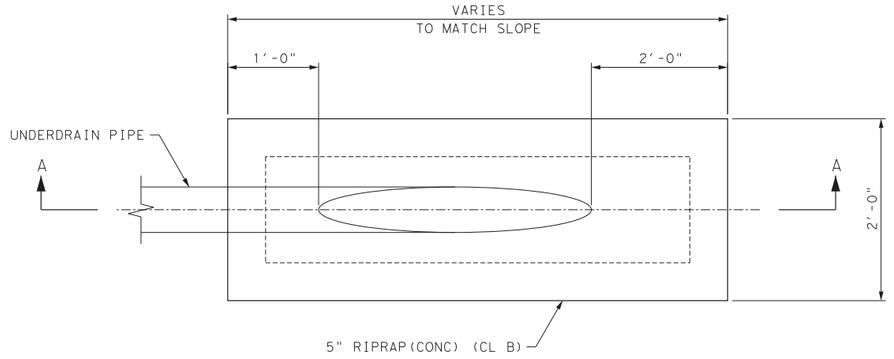
REINFORCED CONCRETE MUST BE CLASS "C" (f'c=3,600 PSI)

PRECAST CONCRETE MUST BE CLASS "H" (f'c=4,000 PSI)

UNREINFORCED CONCRETE MUST BE CLASS "A" (f'c=3,000 PSI)

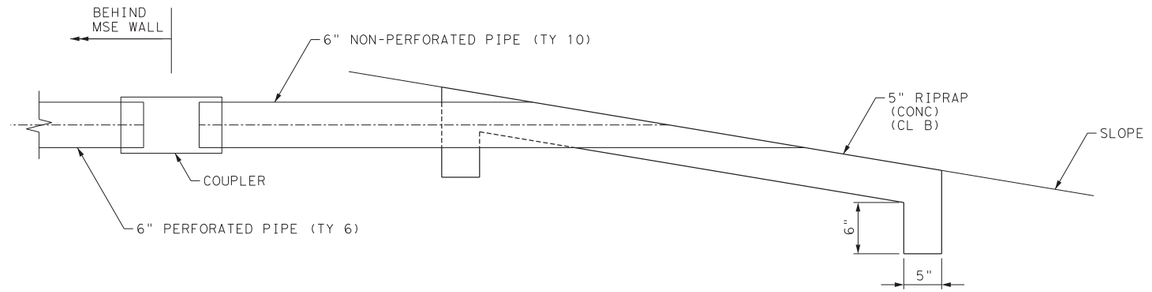
PROVIDE GRADE 60 REINFORCING STEEL.

PROVIDE (#4) LONGITUDINAL BARS, UNLESS OTHERWISE SHOWN.

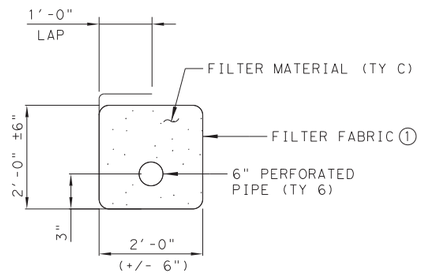


UNDERDRAIN PIPE OUTFALL DETAIL

(OUTFALL TO DITCH)

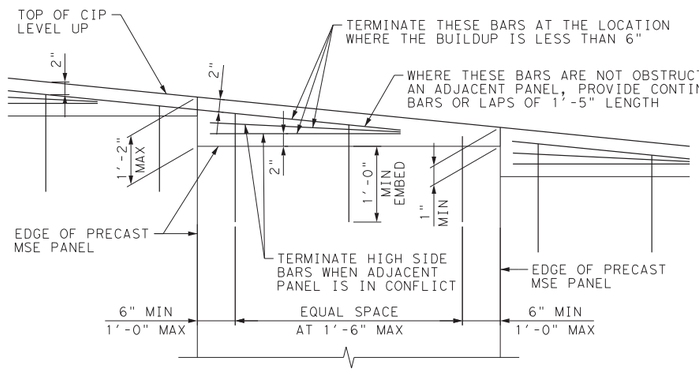


SECTION A-A

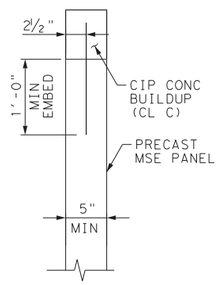


UNDERDRAIN DETAIL

① FILTER FABRIC MEETING THE REQUIREMENTS OF DMS-6200 TYPE 1



ELEVATION



SECTION

LEVEL UP DETAIL

PROVIDE GRADE 60 (#4) REINFORCEMENT

REV. NO.	BY	DATE	REVISION DESCRIPTION

AGUIRRE & FIELDS
7215 NEW TERRITORY BLVD., STE. 100, SUGAR LAND, TX 77479

CITY OF LEANDER
SAN GABRIEL EAST PUMP STATION

RETAINING WALL DETAILS 2 OF 3

AGUIRRE & FIELDS
ENGINEERING INNOVATORS
TBPE FIRM REGISTRATION # 739

STATE OF TEXAS
MACK DAVIS
119955
LICENSED PROFESSIONAL ENGINEER
Mack Davis 11/9/21

CITY OF LEANDER

SCALE	
DATE	11/9/2021
SHEET NUMBER	RW5 OF RW6 26 OF 34

11/9/2021
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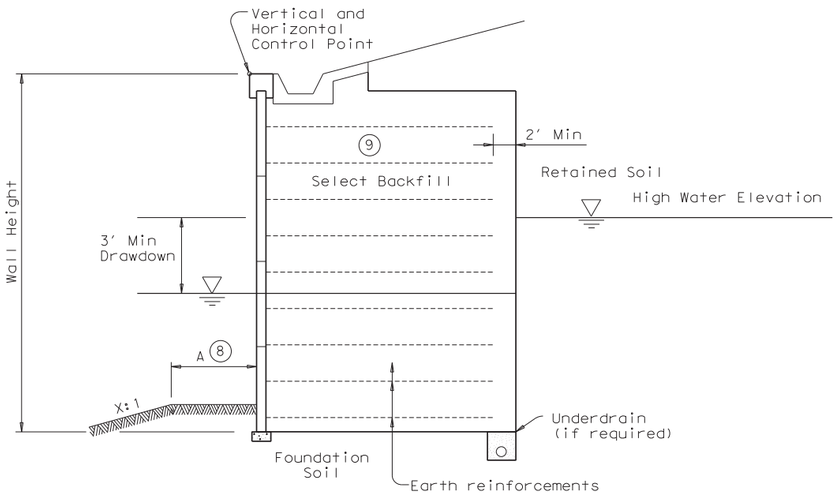
WALL SUMMARY

MSE Retaining Wall	Begin Station (1)	End Station (1)	Retained Soil Friction Angle (2)	Foundation Soil Friction Angle (2)	Ground Improvement (3)	Min Earth Reinforcement Length (4)	Min Wall Embedment (7)	Underdrain Required (5)	Drawdown Analysis (6)	Bench Width (8)
EAST RW	9+97.00	11+81.82	24	22	NOT REQUIRED	1.2*H(8' MIN)	2'	YES	NOT REQUIRED	2'



TYPICAL SECTION

(RAPID DRAWDOWN CONDITION)

(1) Indicate limits for which the stated soil design requirements/assumptions are applicable.

(2) Retained and Foundation friction angle listed should be based on local experience or measured/correlated long term strength values.

(3) Indicate if ground improvement is required or not required. If shown as required, refer to Ground Improvement Detail(s) for additional information.

(4) Indicate on table minimum length and length ratio required. The minimum default length of earth reinforcements shall be either 8'-0" or 70% of the wall height, whichever is greater. Wall height and design wall height may differ depending on project geometry and loading conditions. Note: Wall height at bridge abutments is equal to the distance between the top of leveling pad and finished grade at the bridge abutment backwall.

(5) Indicate if underdrain is required or not required.

(6) Indicate if rapid drawdown analysis is required.

(7) Guidance to wall designer of record for determination of minimum wall embedment: Unless noted elsewhere in the plans, the minimum embedment provided from the top of leveling pad to finish grade shall be 1' for level ground where there is no potential for erosion or future excavation or 2' for sloping ground (4.0H:1.0V or steeper) or where there is potential for removal of soil in front of the wall.

(8) Horizontal Bench width at base of wall varies. Use the following criteria to establish base width.
A = 2.0' Min for X $\geq$ 4. or
A = 4.0' Min for X $\leq$ 4.
Applicable to both drawdown and dry condition.

(9) Select backfill shall be Item 423 Type DS backfill.

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AGUIRRE & FIELDS
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CITY OF LEANDER
SAN GABRIEL EAST PUMP STATION
RETAINING WALL DETAILS 3 OF 3

AGUIRRE & FIELDS
ENGINEERING INNOVATORS
TBPE FIRM REGISTRATION # 739

STATE OF TEXAS
MACK DAVIS
119955
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Mack Davis 11/9/21

CITY OF LEANDER

SCALE	
DATE	11/9/2021
SHEET NUMBER	RW6 OF RW6 27 OF 34

11/9/2021
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PLAN SYMBOLS

	CONDUIT ROUTED UNDERGROUND OR IN FLOOR SLAB.
	EXPOSED OR CONCEALED CONDUIT ABOVE FLOOR
3#10(P), 1#10(G), 3/4"C.	CONDUIT & WIRE DESIGNATION, E.G., 3 #10 POWER, 1 #10 (G) IN ¾" CONDUIT; (P)=POWER; (C) = CONTROL; (G) = GROUND; (A) = ALARM; (SH) = SPACE HEATER; (I) = INSTRUMENTATION; (SP) = SPARE WIRES (EC) = EMPTY CONDUIT
	CONDUIT TURNING DOWN
	CONDUIT TURNING UP
	CONDUIT WITH TWISTED PR SHIELDED CABLE. SHOWN ABOVE FINISH FLOOR OR GRADE AND SHOWN BELOW.
	GROUND WIRE. BARE COPPER. UNDERGROUND.
B1-P	CONDUIT AND WIRE DESIGNATION.
Z	KEYNOTE REFERENCE
75	MOTOR CONNECTION. HP INDICATED. AS SHOWN ON PLAN DWG.
	FLEXIBLE CONDUIT OR PORTABLE CABLE
	MOTOR CONTROL CENTER. NO. OF SECTIONS INDICATED.
	DISCONNECT SWITCH.
J JB	JUNCTION BOX
	GROUND ROD. 3/4" X 10'-0"
	120 VOLT, 20A, 2 POLE, GROUND FAULT INTERRUPTER TYPE DUPLEX RECEPTACLE. PROVIDE WITH SS WEATHERPROOF COVER AND SS BACKBOX WHEN SHOWN AT EXTERIOR LOCATIONS.
	120 VOLT, 20A, 2 POLE, GROUNDING DUPLEX CONVENIENCE OUTLET OR RECEPTACLE. (ABBREVIATION=DCO)
$ M	MANUAL MOTOR SWITCH WITH THERMAL OVERLOADS AND PILOT LT.; (PROVIDE SS BACKBOX & SS WP COVER WHEN SHOWN ON EXTERIOR)
$ WP	SPST SWITCH WHEN SHOWN ON LIGHTING PLANS DENOTES SWITCHING FOR THAT SAME ROOM, WHICH IT IS SHOWN; OR SS WEATHERPROOF SWITCH WITH PILOT LT PROVIDE WITH SS (STAINLESS STEEL) BACKBOX AND SS WP COVER.
	LOW VOLTAGE (120/208V)
	SELECTOR SWITCH:
HOA	PUSHBUTTON – START/STOP UNLESS OTHERWISE NOTED HOA = HAND–OFF AUTO OOT = ON–OFF–TEST LOR = LOCAL–OFF–REMOTE SS = START–STOP MOR = MANUAL–OFF–REMOTE
R	PILOT LIGHT. COLOR INDICATED.
LE LT	LEVEL TRANSDUCER; LEVEL TRANSMITTER
FE FT	FLOW TRANSDUCER; FLOW TRANSMITTER
PE PT	PRESSURE TRANSDUCER; PRESSURE TRANSMITTER
FITQ	PRESSURE INDICATING TRANSMITTER WITH RECORDER
ZS	LIMIT SWITCH
SV	SOLENOID VALVE
FS	FLOW SWITCH
CL	CHLORINATOR
CLD	CHLORINE LEAK DETECTOR
DS	DOOR OPERATED LIMIT SWITCH
TB1	TERMINAL BOX WITH DESIGNATION, NEMA 3R
MOV	MOTOR OPERATED VALVE
MCB	MAIN CIRCUIT BREAKER
ATS	AUTOMATIC TRANSFER SWITCH
D	WALL MOUNTED EXTERIOR LIGHTING FIXTURE

ONE LINE DIAGRAM SYMBOLS

3P–20A	CIRCUIT BREAKER, THERMAL MAGNETIC, RATING AND NUMBER OF POLES AS SHOWN.
SSM	SOLID STATE METERING UNIT.
SP TVSS	SURGE PROTECTION/TRANSIENT VOLTAGE SURGE SUPPRESSOR
480 V 15 KVA 120/240V	POWER TRANSFORMER. RATING AND PRIMARY AND SECONDARY VOLTAGES AND WINDING CONNECTIONS INDICATED.
1200:5 3	CURRENT TRANSFORMER. TURNS RATIO AND NUMBER REQ'D. AS INDICATED.
75	MOTOR. HP INDICATED. AS SHOWN ON ONE–LINE DIAGRAM.
TDR	TIME DELAY RELAY
PM	PHASE MONITOR
3 HMCP	FULL VOLTAGE , NON REVERSING (FVNR) COMBINATION MAGNETIC MOTOR STARTER WITH MOTOR CIRCUIT PROTECTOR (HMCP) DISCONNECT, AND THERMAL OVERLOADS. NEMA SIZE SHOWN. (WHEN SHOWN GRAY SCALED WITH DASHED LINES, PROVIDE SPARE SPACE IN MCC FOR FUTURE DEVICE, SIZE AS SHOWN))
HMCP	SOFT START – SOLID STATE NON–REVERSING STARTER WITH MOTOR CIRCUIT PROTECTOR DISCONNECT, MAIN FUSE AND ISOLATING CONTACTOR. (WHEN SHOWN GRAY SCALED WITH DASHED LINES, PROVIDE SPARE SPACE IN MCC FOR FUTURE DEVICE, SIZE AS SHOWN))
HMCP VFD OC	VARIABLE FREQUENCY DRIVE WITH INPUT FUSE HMCP DISCONNECT AND OUTPUT CONTACTOR. (WHEN SHOWN GRAY SCALED WITH DASHED LINES, PROVIDE SPARE SPACE IN MCC FOR FUTURE DEVICE, SIZE AS SHOWN))
MSH TSH	MOTOR TEMPERATURE SWITCH; MOTOR SPACE HEATER
	PUSHBUTTON
	SELECTOR SWITCH
R	PILOT LIGHT. COLOR INDICATED.
ETM	ELAPSED TIME METER
HOA	HAND–OFF–AUTO SELECTOR SWITCH
PC	PHOTOCELL
KWH	POWER COMPANY KILOWATT HOUR METER
	FUSED SWITCH. FOR MOTOR SPACE HEATER PROTECTION
	COMBINATION FUSIBLE DISCONNECT/STARTER. PROVIDE MINIMUM NEMA SIZE 1 STARTER & FUSE PER MOTOR MFPR'S RECOMMENDATIONS
IMR	MOTOR WINDING INSULATION MONITOR RELAY
LD TS CAS	PUMP TEMPERATURE SWITCH; HOUSING LEAK DETECTOR; MOISTURE AND TEMPERATURE MONITOR.
LSLL	FLOAT LEVEL SWITCH. LSHH=HIGH LEVEL;LSLL=LOW LEVEL; LSR=ALARM RESET LEVEL SWITCH.
	AUTOMATIC TRANSFER SWITCH.
GEN	GENERATOR
RTU	REMOTE TERMINAL UNIT; ANTENNA

SCHEMATIC DIAGRAM SYMBOLS

	MOTOR SPACE HEATER
CRX	NORMALLY OPEN RELAY CONTACT. RELAY NUMBER INDICATED
CRX	NORMALLY CLOSED RELAY CONTACT. RELAY NUMBER INDICATED
OL	MOTOR STARTER OVERLOAD. OPENS ON OVERCURRENT
	TEMPERATURE SWITCH. CLOSES ON FALLING TEMPERATURE.
H O A L XOO XOO	3 POSITION SELECTOR SWITCH. MAINTAINED CONTACT TYPE. H–O–A = HAND–OFF–AUTO; M–O–R = MANUAL–OFF REMOTE L–O–R = LOCAL–OFF–REMOTE XOO = CONTACT STATE AT EACH POSITION
	MOMENTARY CONTACT TYPE PUSHBUTTONS. NORMALLY OPEN; AND NORMALLY CLOSED.
	SPST TOGGLE SWITCH
	DPST TOGGLE SWITCH
	TERMINAL FOR CONTROL WIRING IN RTU PANEL
	TERMINAL FOR I/O WIRING IN CONTROL PANEL
	TERMINAL IN MOTOR CONTROL CENTER "MCC" (IN EACH MOTOR STARTER AT DAHLSTROM)
PMR	PHASE MONITOR AUXILIARY RELAY CONTACT. OPENS ON PHASE FAILURE.
	WIRING REMOTE FROM CONTROL PANELS
	WIRING INSIDE OF CONTROL PANELS
	CONNECTION.
	NO CONNECTION.
ON R	PILOT LIGHT. PUSH–TO–TEST. COLOR INDICATED.
CRX	RELAY COIL.
MS	MOTOR STARTER COIL.
TDR	TIME DELAY RELAY. ON OR OFF DELAY AS NOTED.
ETM	ELAPSED TIME METER
	CONTROL POWER TRANSFORMER – 480 VOLT PRIMARY, 120 VOLT SECONDARY.
	FUSE
	SHIELDED TWISTED PR. #18 INSTRUMENTATION WIRE WITH SHIELD COILED AND TAPED
	SHIELDED TWISTED PR. #18 INSTRUMENTATION WIRE WITH SHIELD CONNECTED TO GROUNDED TERMINAL
	GROUND CONNECTION
	FLOAT LEVEL SWITCH. CLOSES ON RISING LEVEL.
	FLOAT LEVEL SWITCH. OPENS ON RISING LEVEL.

GENERAL NOTES

1. ALL ELECTRICAL WORK SHALL COMPLY WITH LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND THE LOCAL AUTHORITY HAVING JURISDICTION.
2. COMPLY FULLY WITH ALL LAWS AND CODES COVERING THE WORK AND PROVIDE COMPLETE INSTALLATIONS AS REQUIRED BY SAID LAWS AND CODES. ALL MATERIALS FURNISHED, LABOR PERFORMED, ARRANGEMENTS OF SYSTEM, SIZES OF COMPONENTS, AND ALL OTHER FEATURES OF ALL ELECTRICAL WORK SHALL BE IN STRICT ACCORDANCE WITH MUNICIPAL AND STATE CODES, LAWS AND REGULATIONS, RULES OF NEC, OSHA AND/OR OTHER AUTHORITIES THAT HAVE JURISDICTION PERTAINING TO THE WORK.
3. ALL NECESSARY PERMITS, LICENSES, CERTIFICATES, TESTS, ETC. SHALL BE PROCURED AND PAID FOR BY THE CONTRACTOR.
4. IN ALL CASES OF DIFFERENCE BETWEEN MINIMUM REQUIREMENTS OF THE VARIOUS LAWS, CODES, AND AUTHORITIES, IT IS THE INTENT THAT THE WORK SHALL EXCEED THE LESSER REQUIREMENTS WHILE MEETING THE GREATER OR MORE STRINGENT REQUIREMENTS.
5. INSPECT PROJECT SITE IN ORDER TO DETERMINE THE SCOPE AND CHARACTER OF THE ELECTRICAL WORK REQUIRED UNDER THE CONTRACT INCLUDING THE EXTENT AND EFFECT OF EXISTING SYSTEMS.
6. ALL WIRING SHALL BE COPPER CONDUCTOR, MINIMUM #12 AWG, FOR POWER AND LIGHTING WITH TYPE XHHW2 INSULATION. ALL WIRING SHALL BE COLOR CODED PER THE SPECIFICATION REQUIREMENTS. THE WIRING FOR EQUIPMENT GROUND WIRES SHALL HAVE GREEN COLOR INSULATION.
7. CONTRACTOR IS RESPONSIBLE FOR CHECKING ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS FOR ACCURACY AND TO CONFIRM THAT THE WORK IS BUILDABLE AS SHOWN AND MEETS ALL APPLICABLE CODES BEFORE PROCEEDING WITH CONSTRUCTION. IF THERE ARE ANY QUESTIONS REGARDING THESE OR OTHER COORDINATION ISSUES, THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ENGINEER BEFORE PROCEEDING WITH THE WORK IN QUESTION OR WITH RELATED WORK.
8. ALL MATERIALS FURNISHED UNDER THIS CONTRACT SHALL BE NEW UNLESS OTHERWISE NOTED. ALL WORK SHALL BE GUARANTEED AGAINST DEFECTIVE MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF SUBSTANTIAL COMPLETION OR ACCEPTANCE OF THE WORK BY ALL JURISDICTIONS. THE CONTRACTOR SHALL REPAIR OR REPLACE, AT HIS OWN EXPENSE, WHEN ORDERED TO DO SO, ALL WORK THAT MAY DEVELOP DEFECTS IN MATERIAL OR WORKMANSHIP WITHIN SAID PERIOD OF TIME.
9. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED RECOMMENDATIONS FOR SERVICE INTENDED, AS INTERPRETED BY THE ENGINEER. THE INSTALLATION OF ALL EQUIPMENT SHALL BE MADE BY EXPERIENCED CRAFTSMAN IN A NEAT, WORKMANLIKE MANNER. ALL MATERIALS, TOOLS, COSTS AND SERVICES NECESSARY TO COMPLETELY INSTALL ALL ELECTRICAL WORK SHALL BE PROVIDED BY THE CONTRACTOR.
10. IT IS THE INTENT AND MEANING OF THE CONTRACT DOCUMENTS THAT THE CONTRACTOR SHALL PROVIDE ELECTRICAL INSTALLATION THAT IS COMPLETE. ALL ITEMS AND APPURTENANCES NECESSARY, REASONABLY INCIDENTAL, OR CUSTOMARILY INCLUDED, EVEN THOUGH EACH AND EVERY ITEM IS NOT SPECIFICALLY CALLED OUT OR SHOWN IN THE CONSTRUCTION DOCUMENTS SHALL BE PROVIDED.
11. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED DIMENSIONS.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY BRACING AND PROTECTING ALL WORK DURING CONSTRUCTION AGAINST DAMAGE, BREAKAGE, COLLAPSE AND MISALIGNMENT ACCORDING TO APPLICABLE CODES, STANDARDS, AND GOOD CONSTRUCTION PRACTICES. CONTRACTOR SHALL TAKE PROPER PRECAUTIONS TO PROTECT ALL EXISTING OPERATIONS AND PROPERTY ADJACENT, WITH WHICH WORK COMES IN CONTACT, OR OVER OR UNDER WHICH HE MAY TRANSPORT, HOIST, OR MOVE MATERIALS, EQUIPMENT, DEBRIS, ETC., AND SHALL REPAIR SATISFACTORILY ALL DAMAGED CAUSED BY HIM DURING CONSTRUCTION.
13. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH OWNER–PROVIDED EQUIPMENT FOR ELECTRICAL POWER REQUIREMENTS AND COMMUNICATIONS REQUIREMENTS FOR ALL EQUIPMENT INSTALLED IN THIS PROJECT.
14. IT IS THE CONTRACTOR'S RESPONSIBILITY TO STUDY ALL DOCUMENTS AND PROVIDE ALL LABOR AND MATERIALS FOR COMPLETE AND OPERABLE SYSTEMS AS DESIGNED, DESCRIBED, IMPLIED AND SHOWN ON THESE DOCUMENTS. HE SHALL NOT BASE HIS BID SOLEY ON EQUIPMENT COUNTS SHOWN ON DRAWINGS, BUT THE DRAWINGS, SPECIFICATIONS AND THE INTENDED OR SPECIFIED PERFORMACE AS A WHOLE PACKAGE. HE IS RESPONSIBLE FOR PROVIDING HIS EQUIPMENT SUPPLIERS WITH HIS OWN TAKE–OFF OF REQUIRED EQUIPMENT FOR THE PROJECT.

NOTE: INSTALL ALL CONDUITS CONCEALED IN OR UNDER SLAB AND IN WALLS. INSTALL WIRING DEVICES RECESSED IN WALLS.

ABBREVIATIONS

A	AMPERES
AC	ALTERNATING CURRENT
AF	CIRCUIT BREAKER FRAME SIZE IN AMPERES
AFF	MOUNTING HEIGHT ABOVE FINISHED FLOOR
AFG	MOUNTING HEIGHT ABOVE FINISHED GRADE
AG	ABOVE GRADE
AIC	FAULT CURRENT INTERRUPTING CAPACITY IN RMS SYMMETRICAL AMPERES
AT	CIRCUIT BREAKER TRIP RING IN AMPERES
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BKR	BREAKER
C	CONDUIT
COA	CITY OF AUSTIN
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CT	CURRENT TRANSFORMER
CU	COPPER
DC	DIRECT CURRENT
DT	DOUBLE THROW
DCO	DUPLEX CONVENIENCE OUTLET (RECEPTACLE)
EF	EXHAUST FAN
EICD	ELECTRICAL, INSTRUMENTATION AND CONTROLS DIVISION
ETM	ELAPSED TIME METER
EXIST	EXISTING
F	FUSE
FDR	FEEDER
FIXT	FIXTURE
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
GWP	WEATHERPROOF GFCI
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM LAMP
HT	HEIGHT (ABOVE FINISH FLOOR OR GRADE)
HZ	FREQUENCY IN HERTZ (CYCLES PER SEC.)
INC	INCANDESCENT
INST	INSTRUMENT
JB	JUNCTION BOX
KVA	KILOVOLT AMPERES
KW	KILOWATTS
KVAR	KILOVARS
KWH	KILOWATT HOURS
LC	LIGHTING CONTACTOR
LP	LIGHTING PANEL
LV	LOW VOLTAGE
M	MAIN CONTACTOR
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
NC	NORMALLY CLOSED CONTACT
NF	NON–FUSED
NO	NORMALLY OPEN CONTACT
OL	OVERLOAD
PB	PULLBOX OR PUSHBUTTON
PR	PAIR
PL	PILOT LIGHT
PNL	PANEL
PP	POWER POLE
PS	PRESSURE SWITCH
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE CONDUIT OR COATING
RGS	RIGID GALVANIZED STEEL CONDUIT
RVAT	REDUCED VOLTAGE AUTOTRANSFORMER
SP	SINGLE POLE
SDO	SIMPLEX DEDICATED OUTLET
SS	STAINLESS STEEL
SSMU	SOLID STATE METERING UNIT
SSTU	SOLIDSTATE TRIP UNIT
ST	SINGLE THROW
TDR	TIME DELAY RELAY
TR	TIMING RELAY
T/S	TWISTED/SHIELDED
UG	UNDERGROUND
V	VOLTMETER
VFC	VARIABLE FREQUENCY CONTROLLER
VFD	VARIABLE FREQUENCY DRIVE
WP	WEATHERPROOF
WW	WATER AND WASTEWATER UTILITY
XFER	TRANSFER
XFMR	TRANSFORMER
XMTR	TRANSMITTER

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REV. NO.	BY	DATE	REVISION DESCRIPTION

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James R. Schultz 8/13/2021

K FRIESE & ASSOCIATES, INC.
1120 S. CAPITAL OF TEXAS HWY, II-100, AUSTIN, TX 78746

CITY OF LEANDER
SAN GABRIEL EAST ELEVATED STORAGE TANK

ELECTRICAL LEGEND

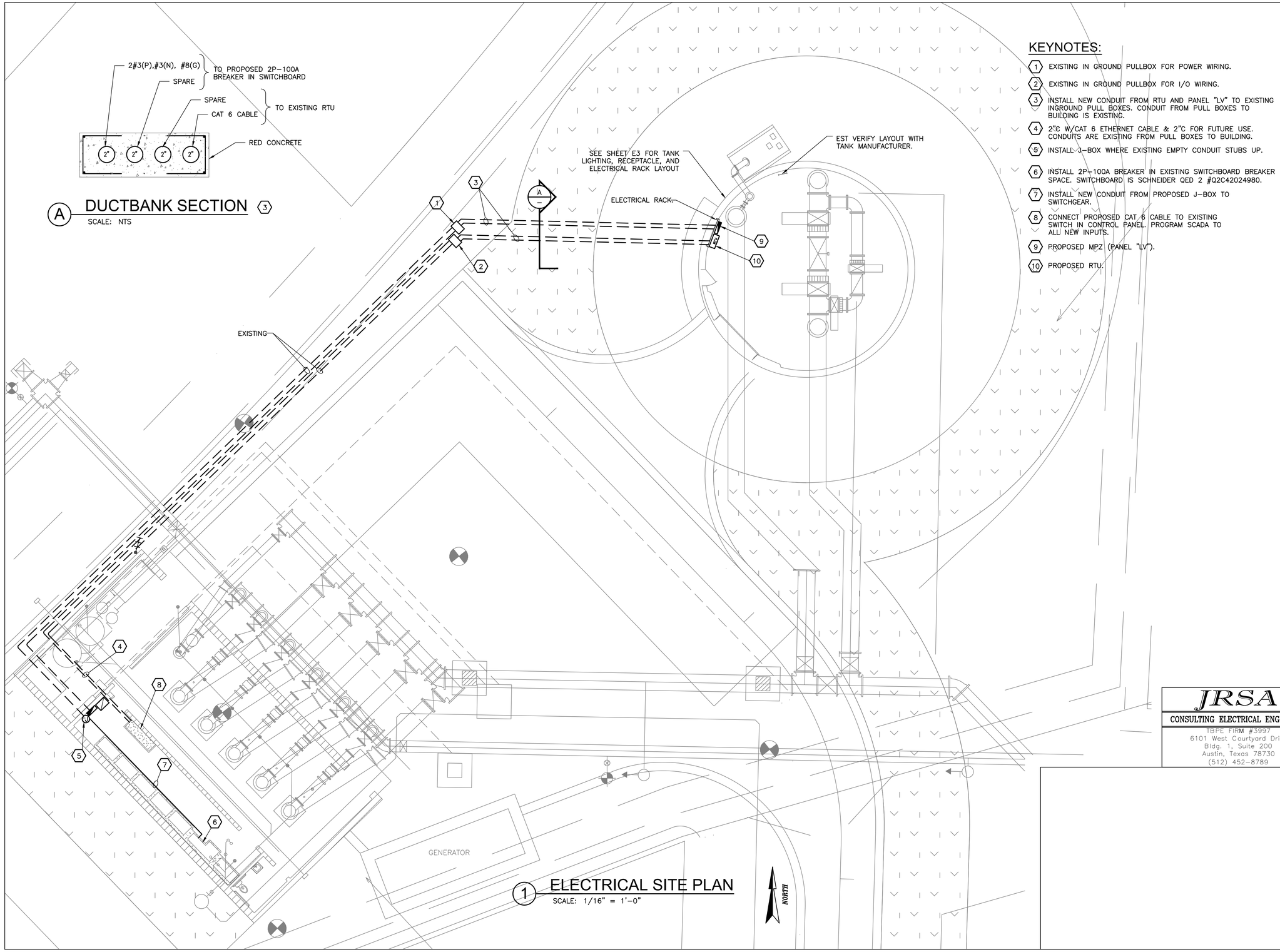
K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING FIRM #6535

CITY OF LEANDER

SCALE	
DATE	8/17/2021
SHEET NUMBER	E1 OF E7 28 OF 34

A DUCTBANK SECTION 3

SCALE: NTS



KEYNOTES:

1. EXISTING IN GROUND PULLBOX FOR POWER WIRING.
2. EXISTING IN GROUND PULLBOX FOR I/O WIRING.
3. INSTALL NEW CONDUIT FROM RTU AND PANEL "LV" TO EXISTING INGROUND PULL BOXES. CONDUIT FROM PULL BOXES TO BUILDING IS EXISTING.
4. 2"C W/CAT 6 ETHERNET CABLE & 2"C FOR FUTURE USE. CONDUITS ARE EXISTING FROM PULL BOXES TO BUILDING.
5. INSTALL J-BOX WHERE EXISTING EMPTY CONDUIT STUBS UP.
6. INSTALL 2P-100A BREAKER IN EXISTING SWITCHBOARD BREAKER SPACE. SWITCHBOARD IS SCHNEIDER QED 2 #Q2C42024980.
7. INSTALL NEW CONDUIT FROM PROPOSED J-BOX TO SWITCHGEAR.
8. CONNECT PROPOSED CAT 6 CABLE TO EXISTING SWITCH IN CONTROL PANEL. PROGRAM SCADA TO ALL NEW INPUTS.
9. PROPOSED MPZ (PANEL "LV").
10. PROPOSED RTU.

1 ELECTRICAL SITE PLAN

SCALE: 1/16" = 1'-0"

REV NO.	BY	DATE	REVISION DESCRIPTION

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James R. Schultz 8/13/2021

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CITY OF LEANDER

SAN GABRIEL EAST ELEVATED STORAGE TANK

ELECTRICAL SITE PLAN

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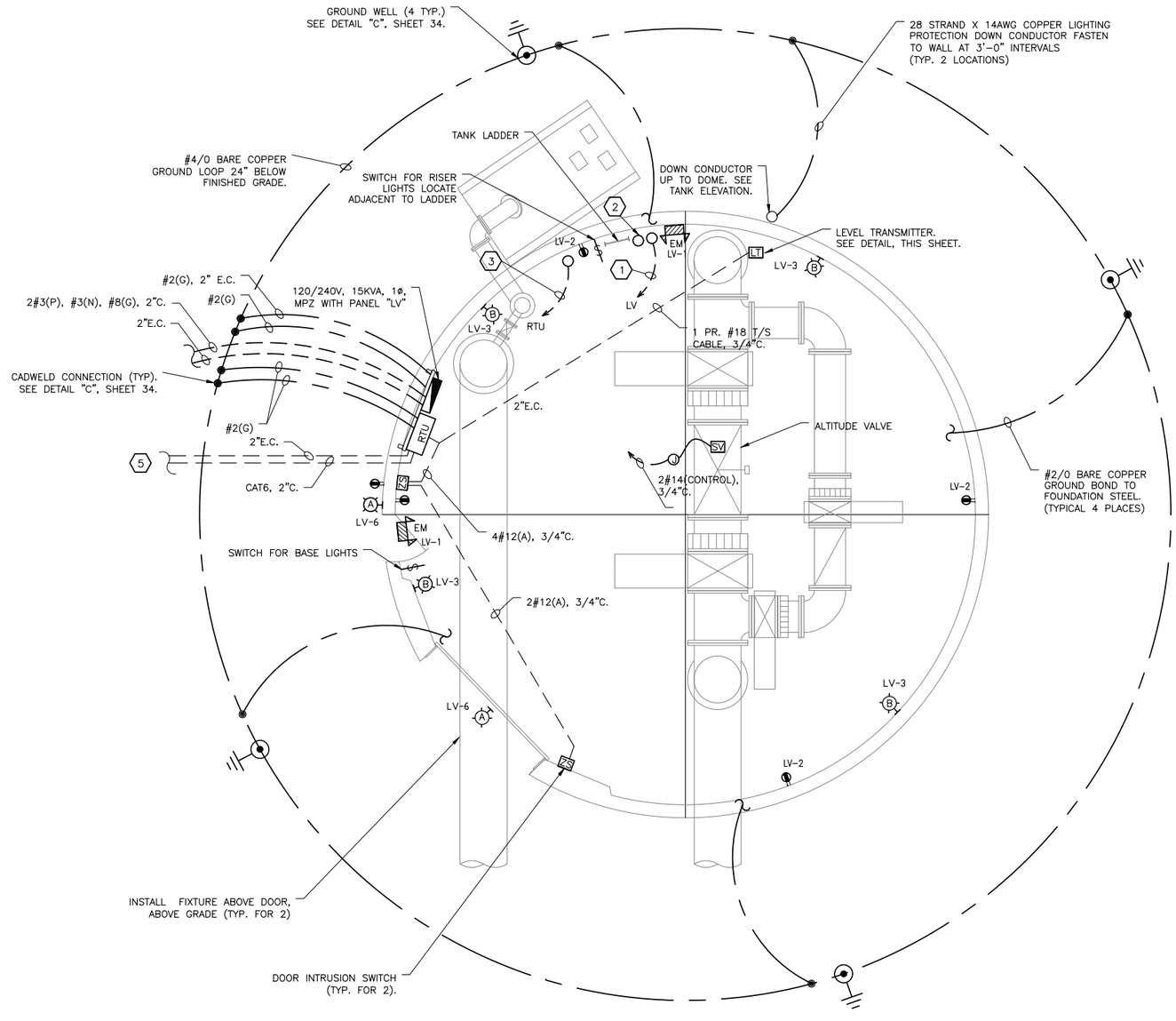
PUBLIC PROJECT ENGINEERING FIRM #6535

CITY OF LEANDER

SCALE	
DATE	8/17/2021
SHEET NUMBER	E2 OF E7 29 OF 34

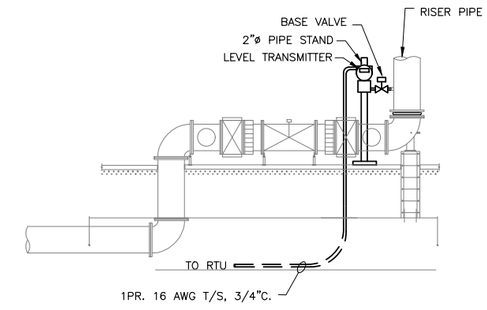


1 TANK PLAN

SCALE: 1/8"=1'-0"

KEYNOTES:

1. 2"C W/PULL STRING. ROUTE UP TO TOP PLATFORM FOR LIGHTING.
2. 2"C W/PULLWIRE, ROUTE TO TOP PLATFORM FOR FUTURE. CAP 6'-0" ABOVE FLOR.
3. 7/8" HELIAX ROUTE UP TO ANTENNA.
4. ROUTE TO EXISTING POWER PULL BOX. SEE SHEET 29.
5. ROUTE TO EXISTING INSTRUMENT PULL BOX. SEE SHEET 29.



A LEVEL TRANSMITTER DETAIL

SCALE: NTS

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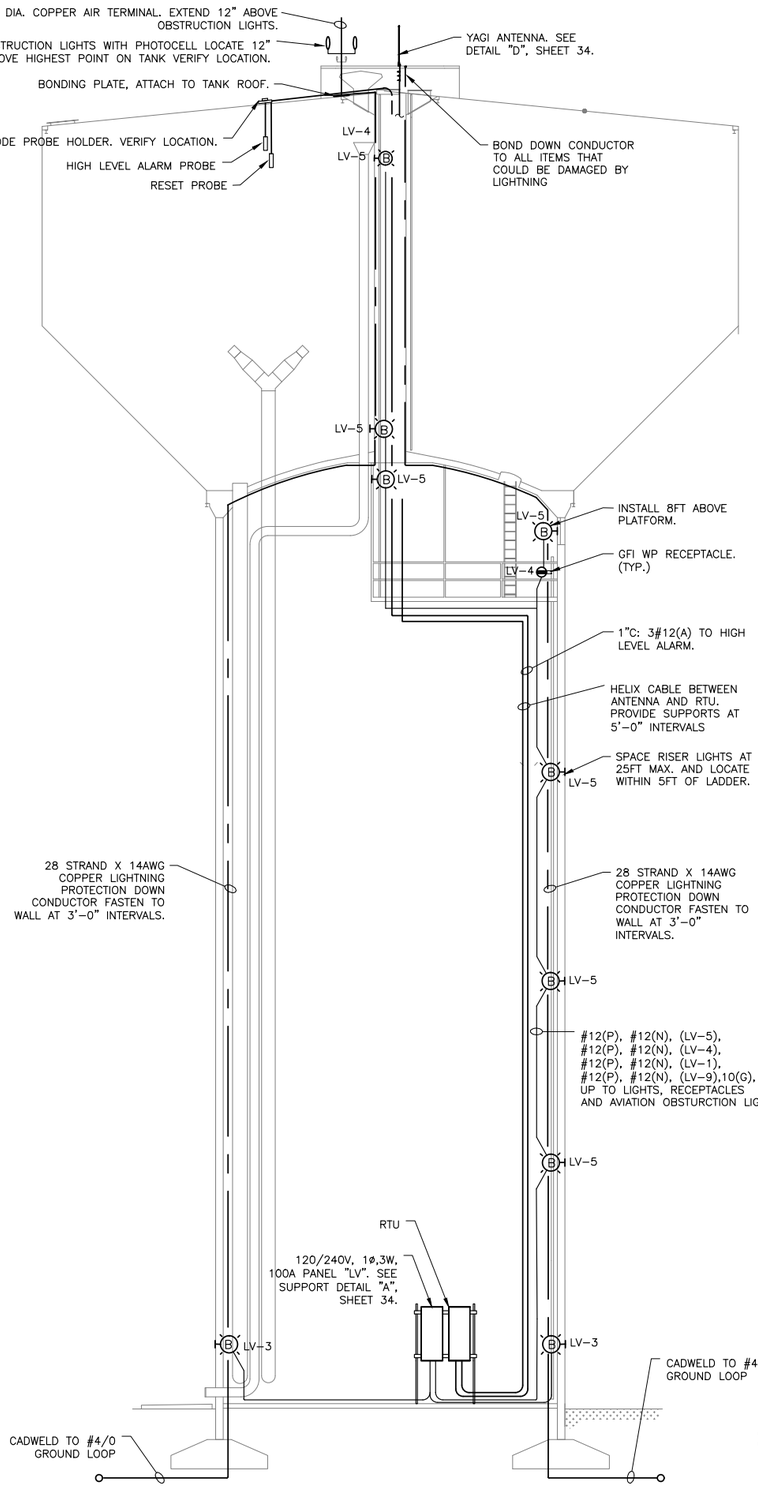
CITY OF LEANDER
SAN GABRIEL EAST ELEVATED STORAGE TANK

ELECTRICAL TANK PLAN DETAIL

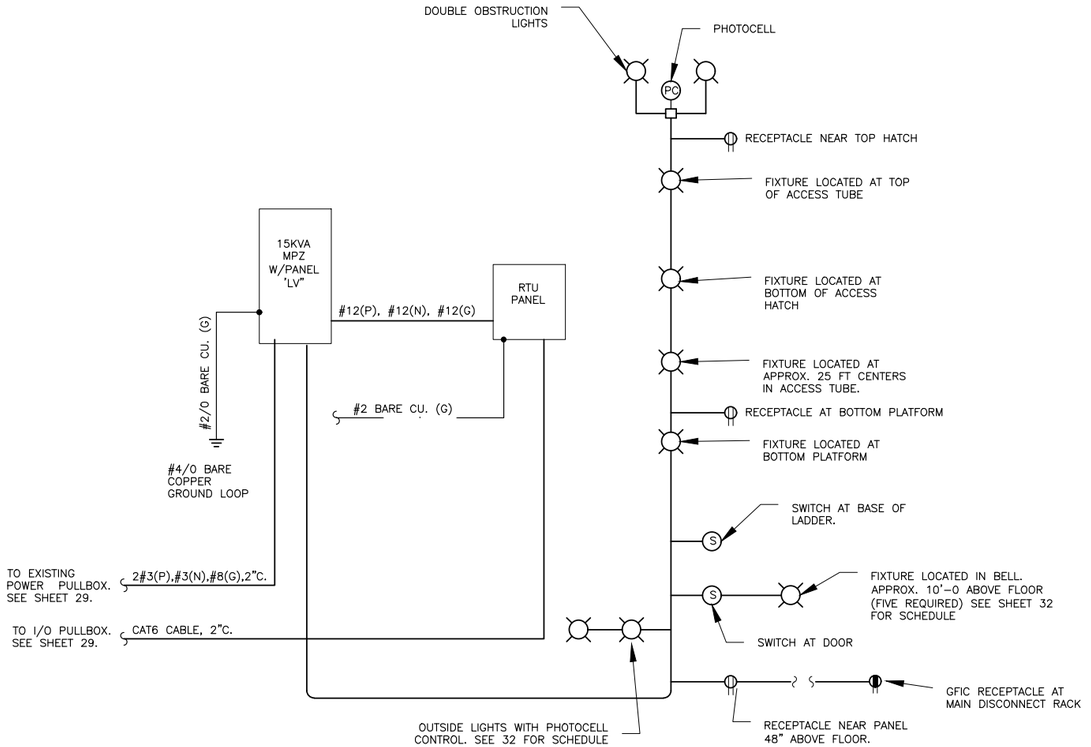
K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING FIRM #6535

CITY OF LEANDER

SCALE	
DATE	8/17/2021
SHEET NUMBER	E3 OF E7 30 OF 34



1 TANK ELEV.
SCALE: NTS



A RISER DIAGRAM
SCALE: N.T.S.

REV. NO.	BY	DATE	REVISION DESCRIPTION

STATE OF TEXAS · JAMES R. SCHULTZ · 27165 · REGISTERED PROFESSIONAL ENGINEER
8/13/2021

K FRIESE & ASSOCIATES, INC.
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CITY OF LEANDER
SAN GABRIEL EAST ELEVATED STORAGE TANK

ELECTRICAL TANK ELEVATION DETAIL

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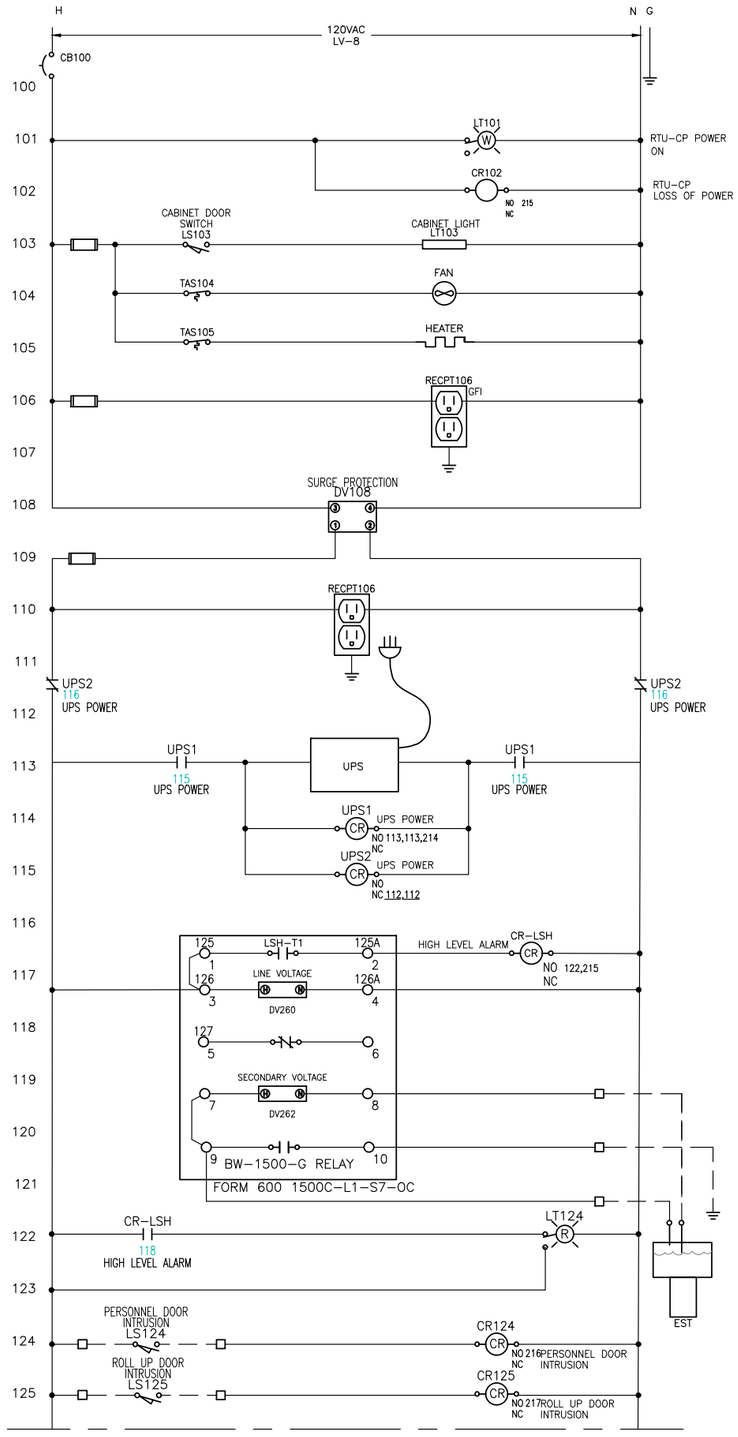
PUBLIC PROJECT ENGINEERING FIRM #4550

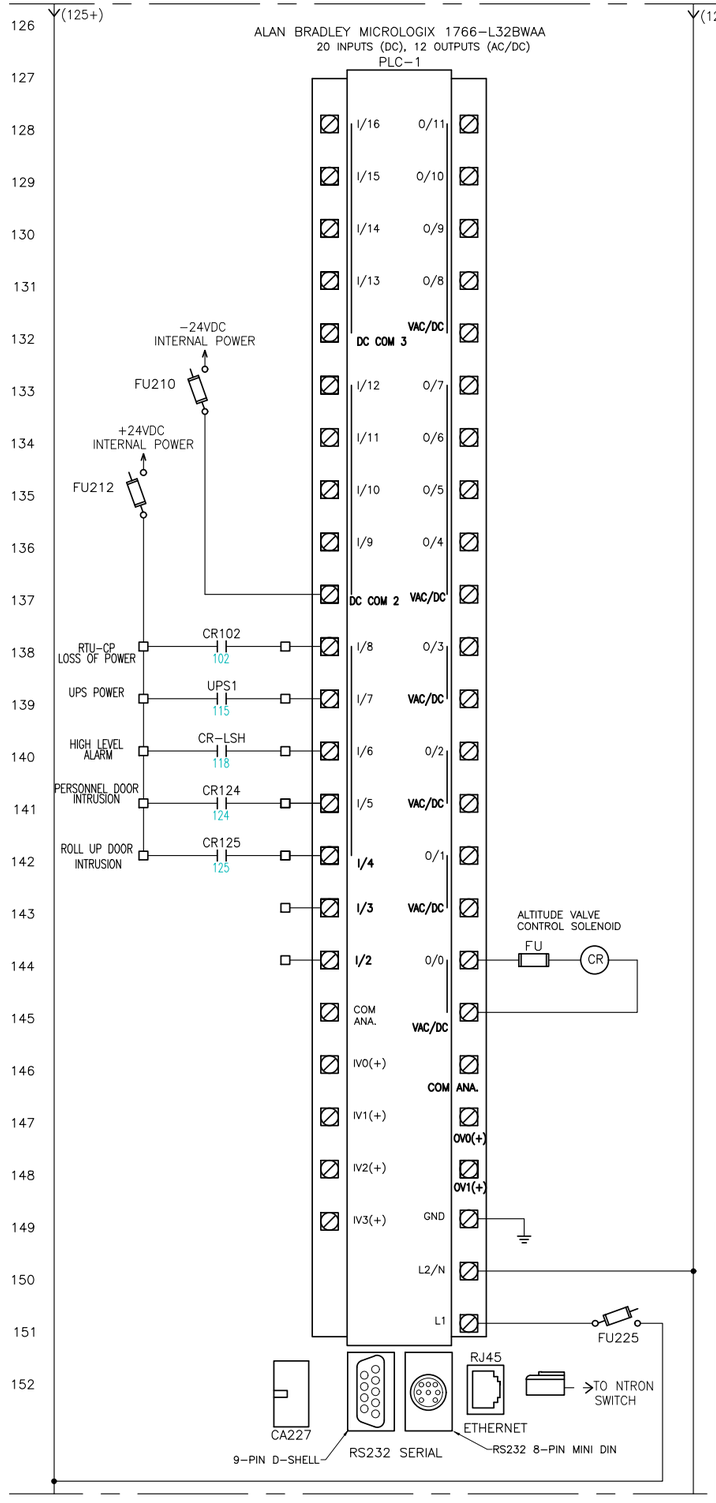
CITY OF LEANDER

SCALE	
DATE	8/17/2021
SHEET NUMBER	E4 OF E7 31 OF 34



1 RTU PANEL SCHEMATIC DIAGRAMS

SCALE: N.T.S.



JRSA
CONSULTING ELECTRICAL ENGINEERS
TBPE FIRM #3997
6101 West Courtyard Drive
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Austin, Texas 78730
(512) 452-8789

REV. NO.	BY	DATE	REVISION DESCRIPTION

STATE OF TEXAS
JAMES R. SCHULTZ
27165
REGISTERED
PROFESSIONAL ENGINEER
8/13/2021

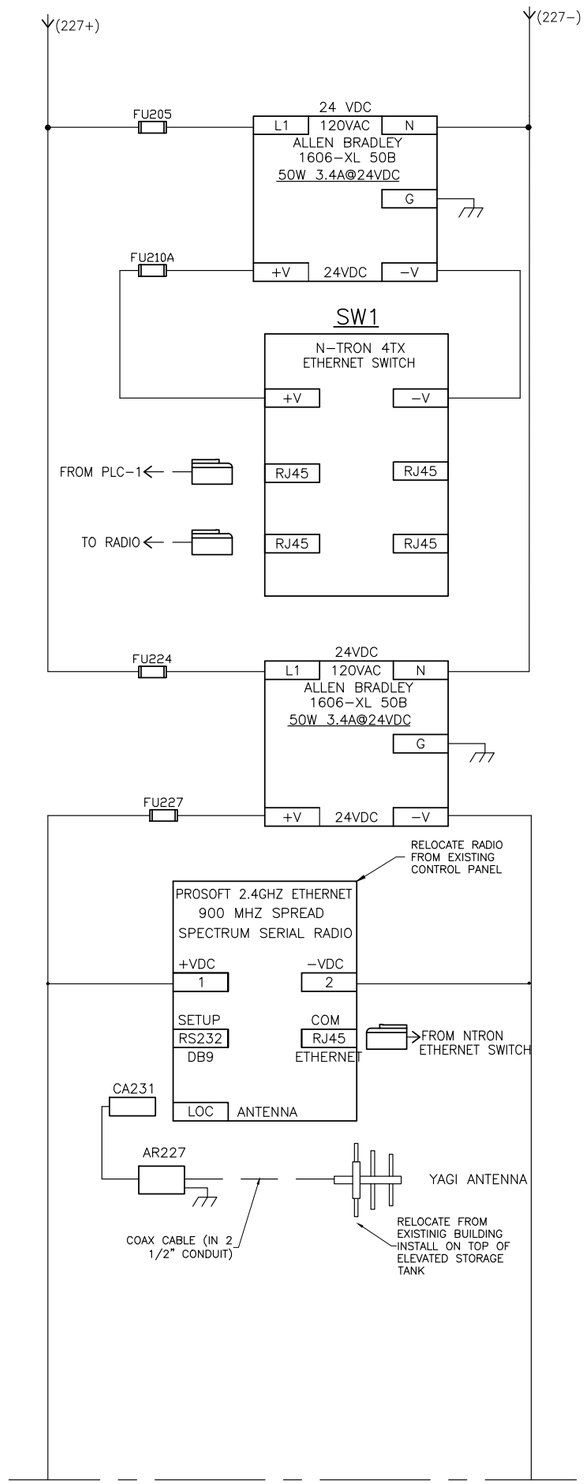
K FRIESE & ASSOCIATES, INC.
1120 S. CAPITAL OF TEXAS HWY, II-100, AUSTIN, TX 78746

CITY OF LEANDER
SAN GABRIEL EAST ELEVATED STORAGE TANK
ELECTRICAL SCHEMATIC

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
FIRM #6535

CITY OF LEANDER

SCALE	
DATE	8/17/2021
SHEET NUMBER	E5 OF E7 32 OF 34



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CITY OF LEANDER

SCALE	
DATE	8/17/2021
SHEET NUMBER	E6 OF E7 33 OF 34

LIGHTING FIXTURE SCHEDULE								
		LAMPS			INPUT	INPUT	MOUNT	
MARK	MANUFACTURER	NO.	TYPE	WATTS	WATTS	VOLTS	TYPE	DESCRIPTION
A	LITHONIA TWH LED 120C 40K	1	LED	72	72	120	SURFACE/ WALL	WALL MOUNTED, CORROSION–RESISTANT, DIE CAST ALUMINUM FIXTURE WITH UV–RESISTANT, POLYCARBONATE COVER AND LED LAMP
B	CROUSE–HINDS DMVF2TW064GP S808 S714	2	COMPACT FLUORESCENT	64	80	120	SURFACE/ WALL	VAPORTIGHT FIXTURE WITH GASKET CAST COPPER FREE ALUMINUM WALL MOUNTED HOUSING, EPOXY POWDER FINISH, SHATTER PROOF GLASS GLOBE WITH GUARD, 3/4" HUB, AND BATTERY PACK BALLAST.
C	LITHONIA ELMZ	3	LED	3	–	120	SURFACE/ WALL	VAPORTIGHT FIXTURE WITH GASKET CAST COPPER FREE ALUMINUM WALL MOUNTED HOUSING, EPOXY POWDER FINISH, SHATTER PROOF GLASS GLOBE WITH GUARD, 3/4" HUB, AND BATTERY PACK BALLAST.

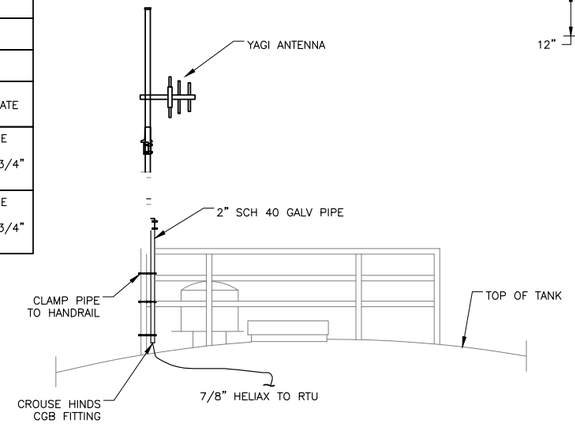
A LIGHTING FIXTURE SCHEDULE

SCALE: N.T.S.

PANEL 'LV"											
100A, 1ø, 3W 120/240V 20–CKT. PANEL											
CKT	POLES	AMPS	DESCRIPTION	VA	A	B	VA	DESCRIPTION	AMPS	POLES	CKT
1	1	20	OBSTRUCTION LIGHTS	500	X		720	BASE RECEPTS	20	1	2
3	1	20	BASE LIGHTS	480		X	360	RISE RECPTS	20	1	4
5	1	20	RISER LIGHTS	560	X		144	OUTSIDE LIGHTS	20	1	6
7	1	20	EXTERIOR RECEPTS	180		X	500	RTU	20	1	8
9	1	20	EMERGENCY LIGHTS	150	X		–	SPARE	20	1	10
11	1	20	SPARE	–		X	–	SPARE	20	1	12
13	1	20	SPARE	–	X		–	SPARE	20	1	14
15	1	20	SPARE	–		X	–	SPACE	20	1	16
17	1	20	SPARE	–	X		–	SPACE	20	1	18
19	1	20	SPARE	–		X	–	SPACE	20	1	20
				2074			1520				
								DEMAND AMPS	14.98		

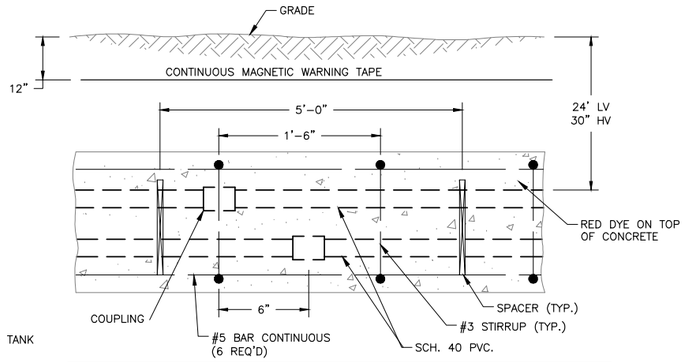
B PANEL 'LV" SCHEDULE

SCALE: N.T.S.



D ANTENNA DETAIL

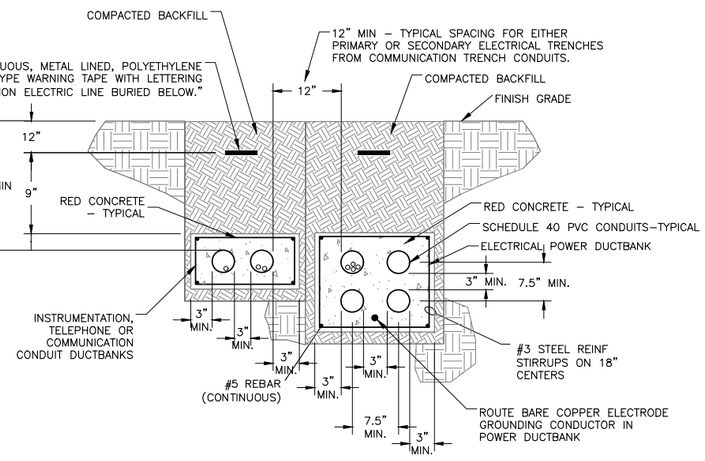
SCALE: N.T.S



NOTE:
1. THIS DETAIL IS ONLY FOR DUCTBANK GENERAL OR MINIMUM REQUIREMENTS.

E LONGITUNDINAL DUCTBANK SECTION

SCALE: N.T.S.

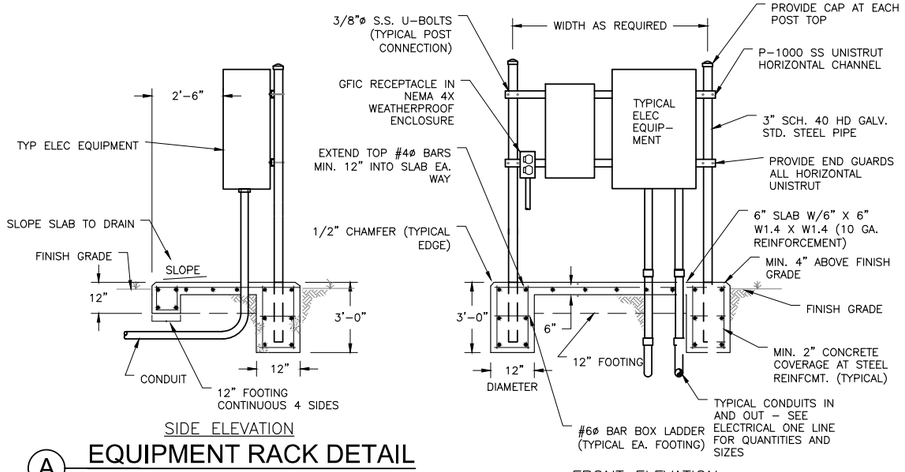


F TYPICAL DUCTBANK SECTION

SCALE: N.T.S.

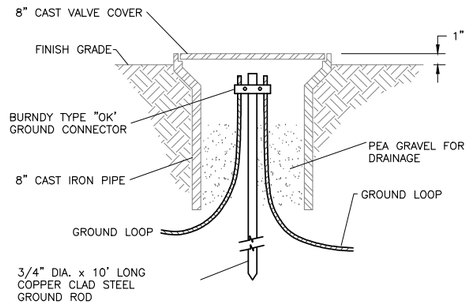
NOTE:

THIS DETAIL IS FOR GENERAL DUCTBANK INFORMATION AND MINIMUM REQUIREMENTS. IT DOES NOT NECESSARILY DEPICT ANY SPECIFIC SITUATION FOR THIS PROJECT.



A EQUIPMENT RACK DETAIL

SCALE: N.T.S.



C GROUND WELL DETAIL

SCALE: N.T.S

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SAN GABRIEL EAST ELEVATED STORAGE TANK
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CITY OF LEANDER

SCALE	
DATE	8/17/2021
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